Bid Security

Document A310™ – 2010

Conforms with The American Institute of Architects AIA Document 310

Bid Bond

CONTRACTOR:
(Name, legal status and address)

New England Fire Equipment & Apparatus Corp.
10 Stillman Road
North Haven, CT 06473

OWNER:
(Name, legal status and address)

Town of Ledyard
11 Fairway Drive
Ledyard, CT 06339

SURETY:
(Name, legal status and principal place of business)

Fidelity and Deposit Company of Maryland
1299 Zurich Way, 5th Floor
Schaumburg, IL 60196-1056
Mailing Address for Notices
1299 Zurich Way, 5th Floor
Schaumburg , IL 60196-1056

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

BOND AMOUNT: 10% Ten Percent of Amount Bid

PROJECT:
(Name, location or address, and Project number, if any)

One (1) Star Series Tanker w/1500 gpm Pump and Accessories Mounted on. One (1) Kenworth T800 Commercial Chassis as per Specifications

The Contractor and Surety are bound to the Owner in the amount set forth above, for the payment of which the Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, as provided herein. The conditions of this Bond are such that if the Owner accepts the bid of the Contractor within the time specified in the bid documents, or within such time period as may be agreed to by the Owner and Contractor, and the Contractor either (1) enters into a contract with the Owner in accordance with the terms of such bid, and gives such bond or bonds as may be specified in the bidding or Contract Documents, with a surety admitted in the jurisdiction of the Project and otherwise acceptable to the Owner, for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof; or (2) pays to the Owner the difference, not to exceed the amount of this Bond, between the amount specified in said bid and such larger amount for which the Owner may in good faith contract with another party to perform the work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect. The Surety hereby waives any notice of an agreement between the Owner and Contractor to extend the time in which the Owner may accept the bid. Waiver of notice by the Surety shall not apply to any extension exceeding sixty (60) days in the aggregate beyond the time for acceptance of bids specified in the bid documents, and the Owner and Contractor shall obtain the Surety's consent for an extension beyond sixty (60) days.

If this Bond is issued in connection with a subcontractor's bid to a Contractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

When this Bond has been furnished to comply with a statutory or other legal requirement in the location of the Project, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

Signed and sealed this 12th day of July, 2022.

(Witness)

(Witness) Lisa Baranczyk

New England Fire Equipment & Apparatus Corp.
(Principal) *(Seal)*

By:
(Title)

Fidelity and Deposit Company of Maryland
(Surety) *(Seal)*

By:
(Title) Sarah E. DeYoung, Attorney-in-Fact

FIDELITY AND DEPOSIT COMPANY OF MARYLAND INCORPORATED 1890

Bond Number Bid Bond

Obligee Town of Ledyard

ZURICH AMERICAN INSURANCE COMPANY
COLONIAL AMERICAN CASUALTY AND SURETY COMPANY
FIDELITY AND DEPOSIT COMPANY OF MARYLAND
POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS: That the ZURICH AMERICAN INSURANCE COMPANY, a corporation of the State of New York, the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY, a corporation of the State of Illinois, and the FIDELITY AND DEPOSIT COMPANY OF MARYLAND a corporation of the State of Illinois (herein collectively called the "Companies"), by Robert D. Murray, Vice President, in pursuance of authority granted by Article V, Section 8, of the By-Laws of said Companies, which are set forth on the reverse side hereof and are hereby certified to be in full force and effect on the date hereof, do hereby nominate, constitute, and appoint Sarah E. DeYoung, its true and lawful agent and Attorney-in-Fact, to make, execute, seal and deliver, for, and on its behalf as surety, and as its act and deed: any and all bonds and undertakings, and the execution of such bonds or undertakings in pursuance of these presents, shall be as binding upon said Companies, as fully and amply, to all intents and purposes, as if they had been duly executed and acknowledged by the regularly elected officers of the ZURICH AMERICAN INSURANCE COMPANY at its office in New York, New York., the regularly elected officers of the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY at its office in Owings Mills, Maryland., and the regularly elected officers of the FIDELITY AND DEPOSIT COMPANY OF MARYLAND at its office in Owings Mills, Maryland., in their own proper persons.

The said Vice President does hereby certify that the extract set forth on the reverse side hereof is a true copy of Article V, Section 8, of the By-Laws of said Companies, and is now in force.

IN WITNESS WHEREOF, the said Vice-President has hereunto subscribed his/her names and affixed the Corporate Seals of the said ZURICH AMERICAN INSURANCE COMPANY, COLONIAL AMERICAN CASUALTY AND SURETY COMPANY, and FIDELITY AND DEPOSIT COMPANY OF MARYLAND, this 19th day of June, A.D. 2019.

ATTEST:
ZURICH AMERICAN INSURANCE COMPANY
COLONIAL AMERICAN CASUALTY AND SURETY COMPANY
FIDELITY AND DEPOSIT COMPANY OF MARYLAND

By: Robert D. Murray
Vice President

By: Dawn E. Brown
Secretary

State of Maryland
County of Baltimore

On this 19th day of June, A.D. 2019, before the subscriber, a Notary Public of the State of Maryland, duly commissioned and qualified, Robert D. Murray, Vice President and Dawn E. Brown, Secretary of the Companies, to me personally known to be the individuals and officers described in and who executed the preceding instrument, and acknowledged the execution of same, and being by me duly sworn, deposeth and saith, that he/she is the said officer of the Company aforesaid, and that the seals affixed to the preceding instrument are the Corporate Seals of said Companies, and that the said Corporate Seals and the signature as such officer were duly affixed and subscribed to the said Instrument by the authority and direction of the said Corporations.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my Official Seal the day and year first above written.

Constance A. Dunn
Constance A. Dunn, Notary Public
My Commission Expires: July 9, 2023

EXTRACT FROM BY-LAWS OF THE COMPANIES

"Article V, Section 8, Attorneys-in-Fact. The Chief Executive Officer, the President, or any Executive Vice President or Vice President may, by written instrument under the attested corporate seal, appoint attorneys-in-fact with authority to execute bonds, policies, recognizances, stipulations, undertakings, or other like instruments on behalf of the Company, and may authorize any officer or any such attorney-in-fact to affix the corporate seal thereto; and may with or without cause modify of revoke any such appointment or authority at any time."

CERTIFICATE

I, the undersigned, Vice President of the ZURICH AMERICAN INSURANCE COMPANY, the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY, and the FIDELITY AND DEPOSIT COMPANY OF MARYLAND, do hereby certify that the foregoing Power of Attorney is still in full force and effect on the date of this certificate; and I do further certify that Article V, Section 8, of the By-Laws of the Companies is still in force.

This Power of Attorney and Certificate may be signed by facsimile under and by authority of the following resolution of the Board of Directors of the ZURICH AMERICAN INSURANCE COMPANY at a meeting duly called and held on the 15th day of December 1998.

RESOLVED: "That the signature of the President or a Vice President and the attesting signature of a Secretary or an Assistant Secretary and the Seal of the Company may be affixed by facsimile on any Power of Attorney...Any such Power or any certificate thereof bearing such facsimile signature and seal shall be valid and binding on the Company."

This Power of Attorney and Certificate may be signed by facsimile under and by authority of the following resolution of the Board of Directors of the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY at a meeting duly called and held on the 5th day of May, 1994, and the following resolution of the Board of Directors of the FIDELITY AND DEPOSIT COMPANY OF MARYLAND at a meeting duly called and held on the 10th day of May, 1990.

RESOLVED: "That the facsimile or mechanically reproduced seal of the company and facsimile or mechanically reproduced signature of any Vice-President, Secretary, or Assistant Secretary of the Company, whether made heretofore or hereafter, wherever appearing upon a certified copy of any power of attorney issued by the Company, shall be valid and binding upon the Company with the same force and effect as though manually affixed.

IN TESTIMONY WHEREOF, I have hereunto subscribed my name and affixed the corporate seals of the said Companies, this 12th day of July, 2022.

Brian M. Hodges, Vice President

TO REPORT A CLAIM WITH REGARD TO A SURETY BOND, PLEASE SUBMIT A COMPLETE DESCRIPTION OF THE CLAIM INCLUDING THE PRINCIPAL ON THE BOND, THE BOND NUMBER, AND YOUR CONTACT INFORMATION TO:

Zurich Surety Claims
1299 Zurich Way
Schaumburg, IL 60196-1056
www.reportsfclaims@zurichna.com
800-626-4577

ZURICH

July 12, 2022

Town of Ledyard
11 Fairway Drive
Ledyard, CT 06339

Re: One (1) Tanker/Pumper Fire Apparatus (#2022-15)

Dear Sirs:

Zurich American Insurance Company and/or its subsidiary, Fidelity and Deposit Company of Maryland, have provided surety credit to New England Fire Equipment & Apparatus Corp. for single projects of $5,000,000 and an aggregate of $75,000,000. Zurich/F&D will consider requests above and beyond these limits on a case by case basis subject to underwriting considerations. Zurich/F&D is rated "A+" (Superior) with a financial size category of XV ($2 billion +) by AM Best and has a US Treasury Limit exceeding $500 million. The current bond rate is $4 per $1,000.

If New England Fire Equipment & Apparatus Corp. is awarded a contract for the referenced project and requests that we provide the necessary Bonds, we will be prepared to execute the bonds subject to our acceptable review of the contract terms and conditions, bond forms, appropriate contract funding and any other underwriting considerations at the time of the request.

Our consideration and issuance of bonds is a matter solely between New England Fire Equipment & Apparatus Corp. and ourselves, and we assume no liability to third parties or to you by the issuance of this letter.

We trust that this information meets with your satisfaction. If there are further questions, please feel free to contact me.

Sincerely,

Sarah E. DeYoung
Attorney-In-Fact

Zurich American Insurance Company
Fidelity and Deposit Company of Maryland

ZURICH AMERICAN INSURANCE COMPANY
COLONIAL AMERICAN CASUALTY AND SURETY COMPANY
FIDELITY AND DEPOSIT COMPANY OF MARYLAND
POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS: That the ZURICH AMERICAN INSURANCE COMPANY, a corporation of the State of New York, the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY, a corporation of the State of Maryland, and the FIDELITY AND DEPOSIT COMPANY OF MARYLAND a corporation of the State of Maryland (herein collectively called the "Companies"), by **MICHAEL BOND, Vice President,** in pursuance of authority granted by Article V, Section 8, of the By-Laws of said Companies, which are set forth on the reverse side hereof and are hereby certified to be in full force and effect on the date hereof, do hereby nominate, constitute, and appoint **Daniel J. SAPIRO, Daniel J. KWIECINSKI, Wendy S. MILLER, Kathleen A. CRARY, Cathy HUTSON, Lisa M. SLAKES, Sarah E. DEYOUNG and Lucy A. HANTZSCH, all of Milwaukee, Wisconsin, EACH** its true and lawful agent and Attorney-in-Fact, to make, execute, seal and deliver, for, and on its behalf as surety, and as its act and deed: **any and all bonds and undertakings,** and the execution of such bonds or undertakings in pursuance of these presents, shall be as binding upon said Companies, as fully and amply, to all intents and purposes, as if they had been duly executed and acknowledged by the regularly elected officers of the ZURICH AMERICAN INSURANCE COMPANY at its office in New York, New York., the regularly elected officers of the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY at its office in Owings Mills, Maryland., and the regularly elected officers of the FIDELITY AND DEPOSIT COMPANY OF MARYLAND at its office in Owings Mills, Maryland., in their own proper persons.

The said Vice President does hereby certify that the extract set forth on the reverse side hereof is a true copy of Article V, Section 8, of the By-Laws of said Companies, and is now in force.

IN WITNESS WHEREOF, the said Vice-President has hereunto subscribed his/her names and affixed the Corporate Seals of the said **ZURICH AMERICAN INSURANCE COMPANY, COLONIAL AMERICAN CASUALTY AND SURETY COMPANY, and FIDELITY AND DEPOSIT COMPANY OF MARYLAND,** this 25th day of September, A.D. 2017.

ATTEST:

ZURICH AMERICAN INSURANCE COMPANY
COLONIAL AMERICAN CASUALTY AND SURETY COMPANY
FIDELITY AND DEPOSIT COMPANY OF MARYLAND

By: _____
Assistant Secretary
Dawn E. Brown

_____
Vice President
Michael Bond

State of Maryland
County of Baltimore

On this 25th day of September, A.D. 2017, before the subscriber, a Notary Public of the State of Maryland, duly commissioned and qualified, **MICHAEL BOND, Vice President, and DAWN E. BROWN, Assistant Secretary,** of the Companies, to me personally known to be the individuals and officers described in and who executed the preceding instrument, and acknowledged the execution of same, and being by me duly sworn, deposeth and saith, that he/she is the said officer of the Company aforesaid, and that the seals affixed to the preceding instrument are the Corporate Seals of said Companies, and that the said Corporate Seals and the signature as such officer were duly affixed and subscribed to the said instrument by the authority and direction of the said Corporations.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my Official Seal the day and year first above written.

_____
Constance A. Dunn, Notary Public
My Commission Expires: July 9, 2019

EXTRACT FROM BY-LAWS OF THE COMPANIES

"Article V. Section 8. Attorneys-in-Fact. The Chief Executive Officer, the President, or any Executive Vice President or Vice President may, by written instrument under the attested corporate seal, appoint attorneys-in-fact with authority to execute bonds, policies, recognizances, stipulations, undertakings, or other like instruments on behalf of the Company, and may authorize any officer or any such attorney-in-fact to affix the corporate seal thereto; and may with or without cause modify of revoke any such appointment or authority at any time."

CERTIFICATE

I, the undersigned, Vice President of the ZURICH AMERICAN INSURANCE COMPANY, the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY, and the FIDELITY AND DEPOSIT COMPANY OF MARYLAND, do hereby certify that the foregoing Power of Attorney is still in full force and effect on the date of this certificate; and I do further certify that Article V, Section 8, of the By-Laws of the Companies is still in force.

This Power of Attorney and Certificate may be signed by facsimile under and by authority of the following resolution of the Board of Directors of the ZURICH AMERICAN INSURANCE COMPANY at a meeting duly called and held on the 15th day of December 1998.

RESOLVED: "That the signature of the President or a Vice President and the attesting signature of a Secretary or an Assistant Secretary and the Seal of the Company may be affixed by facsimile on any Power of Attorney...Any such Power or any certificate thereof bearing such facsimile signature and seal shall be valid and binding on the Company."

This Power of Attorney and Certificate may be signed by facsimile under and by authority of the following resolution of the Board of Directors of the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY at a meeting duly called and held on the 5th day of May, 1994, and the following resolution of the Board of Directors of the FIDELITY AND DEPOSIT COMPANY OF MARYLAND at a meeting duly called and held on the 10th day of May, 1990.

RESOLVED: "That the facsimile or mechanically reproduced seal of the company and facsimile or mechanically reproduced signature of any Vice-President, Secretary, or Assistant Secretary of the Company, whether made heretofore or hereafter, wherever appearing upon a certified copy of any power of attorney issued by the Company, shall be valid and binding upon the Company with the same force and effect as though manually affixed.

IN TESTIMONY WHEREOF, I have hereunto subscribed my name and affixed the corporate seals of the said Companies, this 12th day of July, 2022.

David McVicker, Vice President

TO REPORT A CLAIM WITH REGARD TO A SURETY BOND, PLEASE SUBMIT ALL REQUIRED INFORMATION TO:

Zurich American Insurance Co.
Attn: Surety Claims
1299 Zurich Way
Schaumburg, IL 60196-1056

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 07/12/2022

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER	CONTACT NAME:	
Brown & Brown Inc. 1200 North Mayfair Road, Suite 100 Milwaukee, WI 53226	PHONE (A/C, No, Ext): 1-414-443-0000	FAX (A/C, No):
	E-MAIL ADDRESS:	

INSURED	INSURER(S) AFFORDING COVERAGE	NAIC #
Spartan Fire, LLC 907 7th Avenue N Brandon, SD 57005	INSURER A: GREAT AMER E&S INS CO	37532
	INSURER B: TRAVELERS IND CO OF CT	25682
	INSURER C: AXIS SURPLUS INS CO	26620
	INSURER D: TRAVELERS PROP CAS CO OF AMER	25674
	INSURER E: Mercer Insurance Company	
	INSURER F:	

COVERAGES **CERTIFICATE NUMBER:** 66117124 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X COMMERCIAL GENERAL LIABILITY CLAIMS-MADE [X] OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: [X] POLICY [ ] PRO-JECT [ ] LOC OTHER:			PL 3403401-02	07/01/22	07/01/23	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG $	$ 1,000,000 $ 300,000 $ $ 1,000,000 $ 4,000,000 $ 4,000,000 $
B	AUTOMOBILE LIABILITY [X] ANY AUTO [ ] OWNED AUTOS ONLY [ ] SCHEDULED AUTOS [ ] HIRED AUTOS ONLY [ ] NON-OWNED AUTOS ONLY			HC2ECAP-2G402548-TCT-22	07/01/22	07/01/23	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident) $	$ 2,000,000 $ $ $ $
C	X UMBRELLA LIAB [X] OCCUR EXCESS LIAB [ ] CLAIMS-MADE DED RETENTION $			P-001-000123735-04	07/01/22	07/01/23	EACH OCCURRENCE AGGREGATE $	$ 3,000,000 $ 3,000,000 $
D D	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) Y/N [ ] If yes, describe under DESCRIPTION OF OPERATIONS below	N/A		UB5T44808A22NCR AZ,WI UB5T45129222NCT AOS	07/01/22 07/01/22	07/01/23 07/01/23	[X] PER STATUTE [ ] OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	 $ 1,000,000 $ 1,000,000 $ 1,000,000
A	Excess Liability 3			XS 3403394-02	07/01/22	07/01/23	Limit	5,000,000
E	Excess Liability 2			20000000174	07/01/22	07/01/23	Limit	2,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

CERTIFICATE HOLDER

Town of Ledyard
1 Fairway Drive
Ledyard, CT 06339
USA

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

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CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 09/08/2021

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Scott Insurance 3151 Main Street Stratford CT 06614-4815	**CONTACT NAME:** Maureen Doherty **PHONE (A/C, No, Ext):** (203) 375-5847 **FAX (A/C, No):** (203) 378-9335 **E-MAIL ADDRESS:** mdoherty@scottinsurance.com
INSURED New England Fire Equipment & Apparatus Corporation 10 Stillman Road North Haven CT 06473	**INSURER(S) AFFORDING COVERAGE** — **NAIC #** INSURER A : Arch Insurance Company INSURER B : Ohio Security — 24082 INSURER C : INSURER D : INSURER E : INSURER F :

COVERAGES **CERTIFICATE NUMBER:** CL216212450 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	[X] COMMERCIAL GENERAL LIABILITY [ ] CLAIMS-MADE [X] OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: [X] POLICY [ ] PRO-JECT [ ] LOC [ ] OTHER:	Y		MFPK08554507	05/31/2021	05/31/2022	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG [ ]	$ 1,000,000 $ 300,000 $ 10,000 $ 1,000,000 $ 2,000,000 $ 2,000,000 $
A	AUTOMOBILE LIABILITY [X] ANY AUTO [ ] OWNED AUTOS ONLY [ ] SCHEDULED AUTOS [X] HIRED AUTOS ONLY [X] NON-OWNED AUTOS ONLY			MFCA08348107	05/31/2021	05/31/2022	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident) Uninsured Motorist	$ 1,000,000 $ $ $ $ 1,000,000
A	[ ] UMBRELLA LIAB [X] OCCUR [X] EXCESS LIAB [ ] CLAIMS-MADE [ ] DED [X] RETENTION $ 0			MFUM07988607	05/31/2021	05/31/2022	EACH OCCURRENCE AGGREGATE [ ]	$ 1,000,000 $ 1,000,000 $
B	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) Y/N: Y If yes, describe under DESCRIPTION OF OPERATIONS below	N/A		XWS59860532	05/28/2021	05/28/2022	[ ] PER STATUTE [X] OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	 $ 1,000,000 $ 1,000,000 $ 1,000,000
	Crime, Employee Theft Blanket and Forgery or Alteration							

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

CERTIFICATE HOLDER

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Maureen A. Doherty

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Proposal

NEW ENGLAND FIRE EQUIPMENT & APPARATUS CORPORATION
10 STILLMAN ROAD
NORTH HAVEN, CONNECTICUT 06473

TEL 203-239-5678

Dave Bunnell, Sales Representative
Cell: 203-233-1247
Email: dbunnell@nefea.com

PROPOSAL FOR RESCUE PUMPER

August 4, 2022

Chairman Zachary Willis
11 Fairway Drive
Ledyard, CT 06339

Chairman Willis

We hereby propose and agree to furnish, after your acceptance of this proposal, and the proper execution and approval of the purchase order, the following apparatus and equipment:

One (1) 2024 Spartan ER Pumper Tanker on a Kenworth T-880 chassis

All of which is to be built in accordance with the specifications attached and are made a part of this agreement and contract, properly executed, subject to all causes beyond our control, for the sum of:

$640,412.00 Six Hundred Forty Thousand, Four Hundred Twelve and 00/100 dollars.

Delivery to be in approximately **440** days from date of contract signing. Due to the volatility of chassis and parts availability, this date is subject to change.

Respectfully submitted,

Dave Bunnell, Sales Representative

SOLE SOURCE

Smeal/Spartan ER is a sole source company that supplies the complete apparatus.

FACTORY LOCATIONS

We have several factory locations in the United States:

Snyder, Nebraska
Charlotte, Michigan
Brandon, South Dakota
Ephrata, Pennsylvania

SERVICE CENTER LOCATIONS

We have several service locations and mobile service units based in the New England States:

North Haven, CT
Dover, NH
Wilton, ME
East Burke, VT
Swansea, MA

SERVICE CENTER

NEFEA maintains a full service, repair and warranty center. The service center is owned and operated by the dealership, which is an established business entity. It is not a Third party service or repair service. The dealership's service center and office is located in a commercial business district, the office or service center is located in a residential district. We provide competent 24-hr.; 7 days a week service without interruption.

NEFEA is a licensed and bonded new car dealer for the State of Connecticut.

NEFEA HAS THE FOLLOWING WITHOUT EXCEPTION:

1) Full Fire Apparatus CAD system for fire apparatus.
2) Minimum of Fifteen (15) years of continuous ownership and management.
3) Certified in-house pump mechanics for the following pumps:
    Hale
    Waterous
4) International air terminal within five (5) miles for receipt of air shipments of service parts.

5) Certified in-house mechanics the following areas:

EVT – Fire pumps and accessories
EVT – Aerial fire apparatus

REYCO – Spring maintenance and repair/replacement

CLASS 1 – Multiplexed electrical systems

AIR COMPRESSOR SERVICE
American Bristol
Mako

DETROIT DIESEL
Engine tune up
DDEC III & IV

GENERATORS
Harrison

6) Certified warranty center for the chassis being supplied.
7) Seven (7), Mobile service unit –fully stocked with tools & parts.
8) 150,000 sqft of outside storage area.
9) 15,000 sqft of heated indoor storage/repair area.
10) MIG & TIG welder and cutting torches.
11) PPG certified service center.
12) Digital camera for repair photographs.
13) Capability of servicing several large fire apparatus (aerials, tankers and pumpers) simultaneously indoors with cabs fully tilted and aerial devices removed from their beds.
14) Plasma cutter.
15) Hydraulic hose coupling system with fittings and hose in house.
16) 24 hour emergency on site service at customers fire station.
17) On site service, preventative maintenance and warranty repairs. The apparatus shall not be driven back and forth to the apparatus dealership for warranty & service work.
18) A Laptop computer & Pro-Link 9000 diesel engine reader and analytical device. A on site print-out device. With the following cartridges:

DDEC motors
ATEC application
MERITOR ABS braking system
CUMMINS motors

19) Vogel lubrication refill pumps – in service center and on mobile service units.
20) V-Mux Multiplexed USB downloader.
21) Harrison generator warranty/ service center.
22) Synthetic grease system.
24) Apparatus standing post lift system with 120,000 lb. lift capability.
25) Fire Apparatus Part Inventory over $ 300,000.
26) 60' Spray booth (OSHA approved) with two (2) AM units.

27) On site paint mixing room.
28) Computer paint matching system.
29) Oil:Water separation system that meets DEP requirements
30) 200 ton Hydraulic Brake for bending all types of metal
31) 70 ton hydraulic sheer for cutting all types of metal

APPARATUS TRAINING

We shall provide a minimum 8 hours structured training course covering nomenclature of components, proper operation of the apparatus, foam system, pump operation, daily operational maintenance checks, and other information necessary for a firefighter/driver/engineer to properly operate and maintain the apparatus.

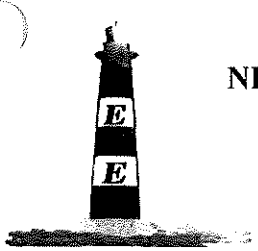
It is intended that this training be organized in such a manner that both the mechanics and fire personnel receive full benefit of the aforementioned structured training. The firefighter/operator training shall be conducted within one week after the vehicle is fully accepted and readied for service by the "Purchaser" or at a time mutually agreed upon by the "Purchaser" and "Supplier".

FACTORY TRIPS

There shall be TWO (2) factory inspection trips for THREE (3) members of the Ledyard Fire Co. All travel, lodging, food and all related expenses shall be paid by the bidder.

CONSTRUCTION PICTURES

Spartan Emergency Response will provide construction photos of the apparatus from chassis arrival until completion of the apparatus.



NEW ENGLAND FIRE EQUIPMENT & APPARATUS CORPORATION
10 STILLMAN ROAD
NORTH HAVEN, CONNECTICUT 06473
TEL 203-234-5678 FAX 203-234-7398

New England Fire Service Center:

- Full Fire Apparatus CAD system for fire apparatus.
- Twenty-six (26) years of continuous ownership and management.
- International air terminal within five (5) miles for receipt of air shipments of service parts.
- Certified in-house mechanics the following areas:

  (5) EVT s
  (1) Master EVT
  (6) ASE
  (12) Full time Emergency Apparatus Technicians

  DETROIT DIESEL
  Engine tune up
  DDEC III & IV

  CUMMINS ENGINE – Service and overhaul

  ALLISON TRANSMISSION – Service and overhaul

  REYCO – Spring maintenance and repair/replacement

  CLASS 1 – Multiplexed electrical systems

  AIR COMPRESSOR SERVICE
  American Bristol
  Mako

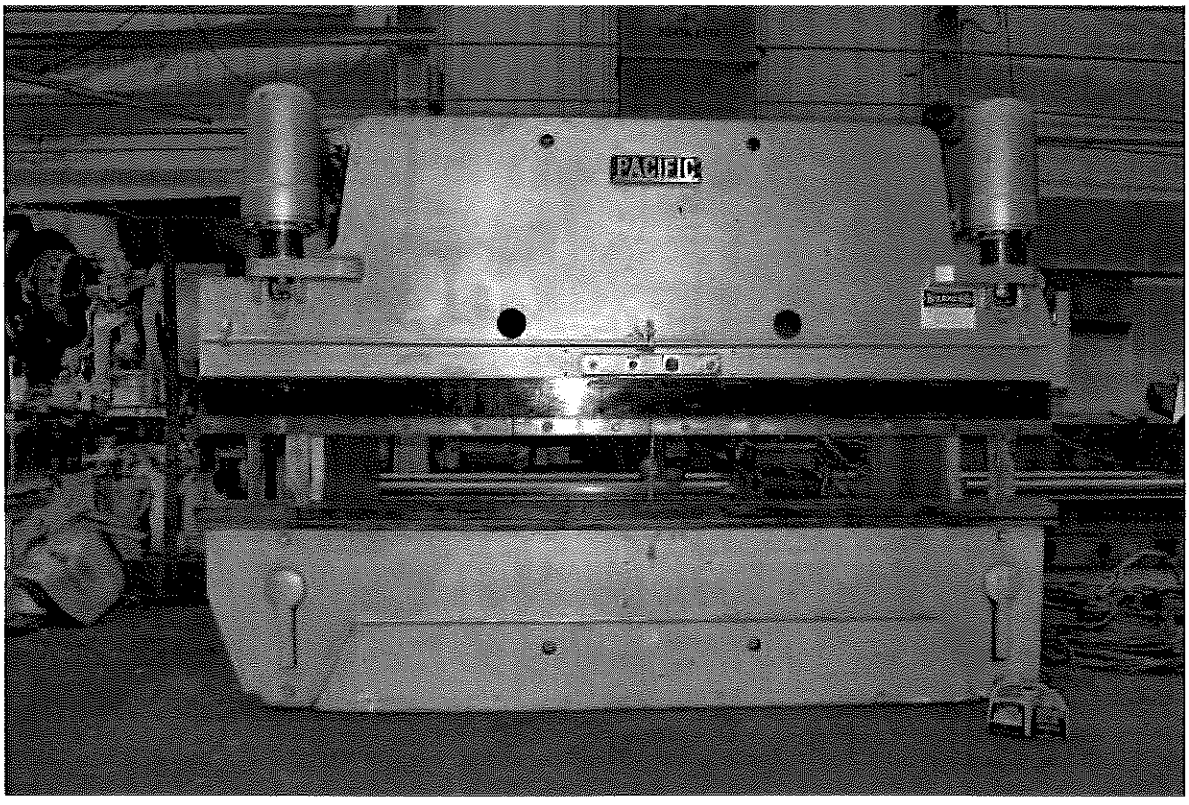
  GENERATORS
  Harrison
  Smart Power

- Certified warranty center for Spartan, Smeal, US Tanker, LTC, P.L. Custom, Rescue 1, and Marco.
- Seven (7), Mobile service unit –fully stocked with tools & parts.
- 150,000sqft of outside storage area.
- 15,000sqft of heated indoor storage/repair area.
- MIG & TIG welder and cutting torches.
- PPG certified service center.
- Digital camera for repair photographs.
- Capability of servicing several large fire apparatus (aerials, tankers and pumpers) simultaneously indoors with cabs fully tilted and aerial devices removed from their beds.
- Plasma cutter.

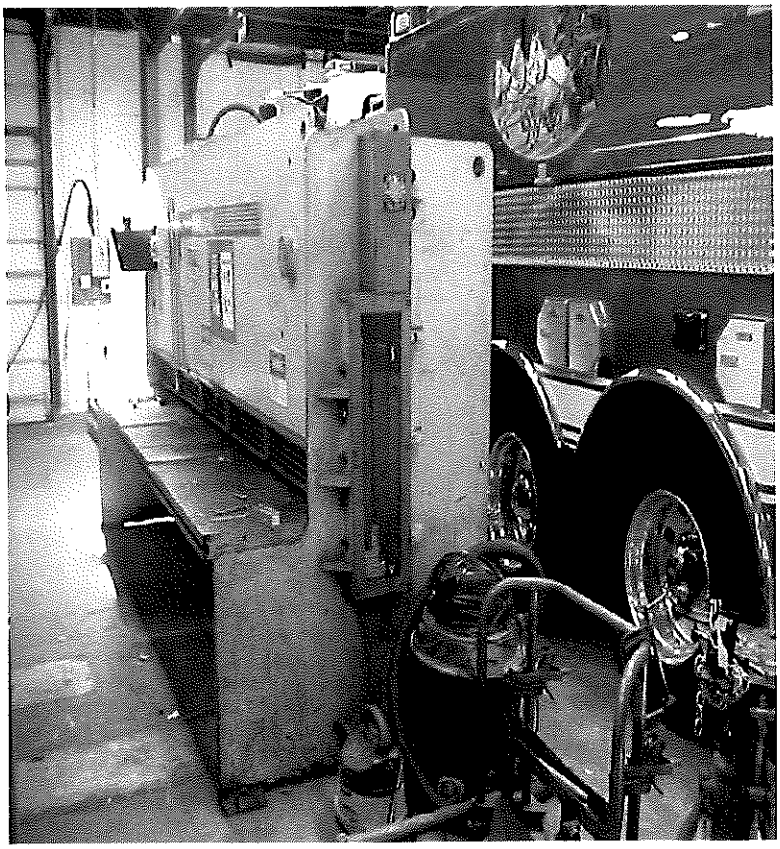
- Hydraulic hose coupling system with fittings and hose in house.
- 24 hour emergency on site service at customer's fire station.
- Onsite service, preventative maintenance and warranty repairs. The apparatus shall not be driven back and forth to the apparatus dealership for warranty & service work.

- A Laptop computer & Pro-Link 9000 diesel engine reader and analytical device. An onsite print-out device with the following cartridges:
  DDEC motors
  ATEC application
  MERITOR ABS braking system
  CUMMINS motors
- Vogel lubrication refill pumps – in service center and on mobile service units.
- V-Mux Multiplexed USB downloader.
- Harrison generator warranty/ service center.
- Synthetic grease system.
- Apparatus standing post lift system with 120,000 lb. lift capability.
- Robinair 34788-NP A/C recovery and recharge; fully automatic system.
- Sixty foot Cross/Down State Of The Art future cure paint booth.
- SRS System Repairs
- Full Parts Department For All Makes and Model Apparatus

This is the Stillman Rd. North Haven CT. Location


PACIFIC


ENGINE
HAMPTON
FIRE/RESCUE
2



SAFETY
SECURITY
SERVICE

DMV

STATE OF CONNECTICUT

Department of Motor Vehicles
60 State Street, Wethersfield, CT 06109

License Number

N2564

Effective: October 21, 2021
Expiration: October 31, 2023

NEW ENGLAND FIRE EQUIP & APPRTUS CO
10 STILLMAN RD
NORTH HAVEN, CT 06473-1620

New Dealer

Authorized Makes

PL CUSTOM EM/RESCU, SMEAL, SPARTAN

NON TRANSFERABLE. If business is sold, transferred, or discontinued, return this license and current number plates to Department of Motor Vehicles.

dun & bradstreet

Business Information Report Snapshot

NEW ENGLAND FIRE EQUIPMENT & APPARATUS, CORP.

D-U-N-S: 61-353-5830
ADDRESS: 10 Stillman Rd, North Haven, CT, 06473, United States
Date: 03/11/2022

RISK ASSESSMENT

SCORES AND RATINGS

Max. Credit Recommendation	PAYDEX® SCORE	Delinquency Predictor Percentile	Financial Stress Percentile	Supplier Evaluation Risk Rating
US$ 10,000	76	10	42	6
	LOW RISK	HIGH RISK	MODERATE RISK	MODERATE RISK

MAXIMUM CREDIT RECOMMENDATION

Overall Business Risk

MODERATE-HIGH

Maximum Credit Recommendation

US$ 10,000

The recommended limit is based on a moderate-high probability of severe delinquency.

Dun & Bradstreet Thinks...

- Overall assessment of this organization over the next 12 months: SOME STABILITY AND PAYMENT BEHAVIOR CONCERNS
- Based on the predicted risk of business discontinuation: MODERATELY HIGHER THAN AVERAGE RISK OF DISCONTINUED OPERATIONS OR BUSINESS INACTIVITY
- Based on the predicted risk of severely delinquent payments: VERY HIGH POTENTIAL FOR SEVERELY DELINQUENT PAYMENTS

PAYDEX® SUMMARY

3 Months

When weighted by dollar amount, payments to suppliers average 5 days beyond terms. Value is based on payments collected over the last **3 months**.

24 Months

When weighted by dollar amount, payments to suppliers average 6 days beyond terms. Value is based on payments collected over the last **24 months**.

PAYDEX®

Based on 24 months of data

76

Low Risk (100) High Risk (1)

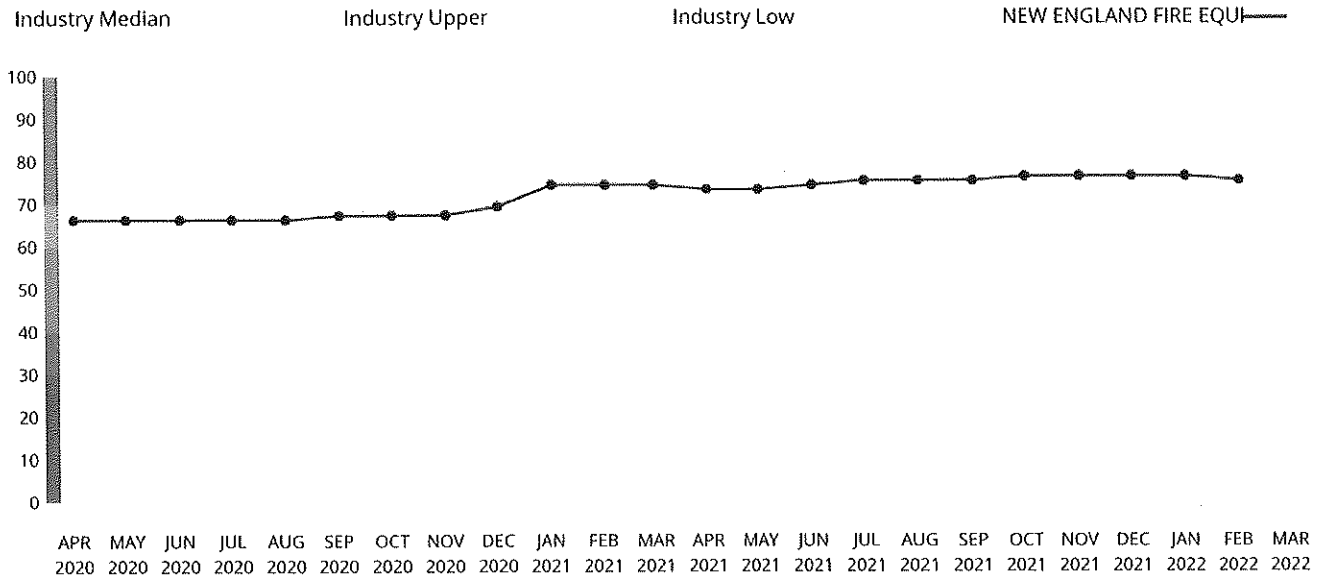
Risk of Slow Pay
LOW

Payment Behavior
6 Days Beyond Terms

Based on a D&B PAYDEX® of 76

Business and Industry Trends

5099 - Whol durable goods



DELINQUENCY PREDICTOR SCORE

10

Low Risk (100) High Risk (1)

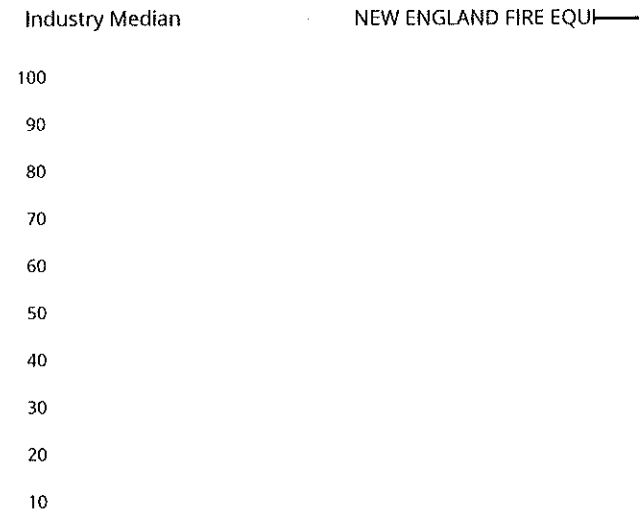
Based on a D&B Delinquency Predictor Percentile of 10

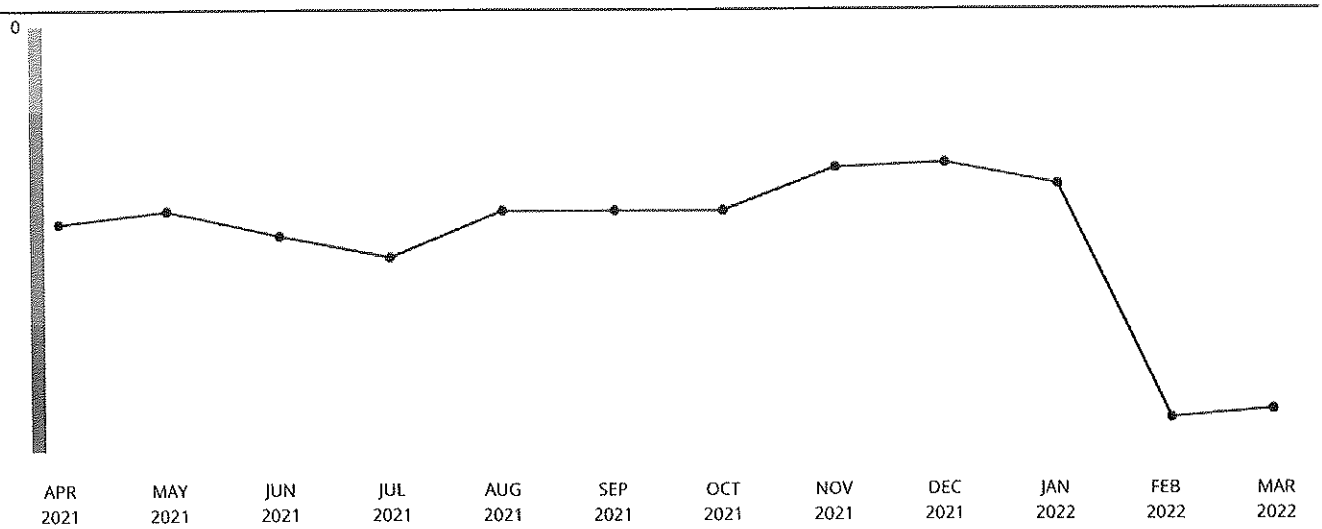
- Increase in proportion of delinquent payments in recent payment experiences
- Recent high balance past due
- Higher risk industry based on delinquency rates for this industry
- Proportion of past due balances to total amount owing
- Evidence of open judgments
- Evidence of recent payment experiences paid later than 30 days

Level of Risk	Raw Score	Probability of Delinquency	Compared to Businesses in D&B
HIGH	446	13.39%	10.2%

Business and Industry Trends

5099 - Whol durable goods





FINANCIAL STRESS SCORE

42

Low Risk (1,001) High Risk (1)

- Low proportion of satisfactory payment experiences to total payment experiences
- High proportion of past due balances to total amount owing

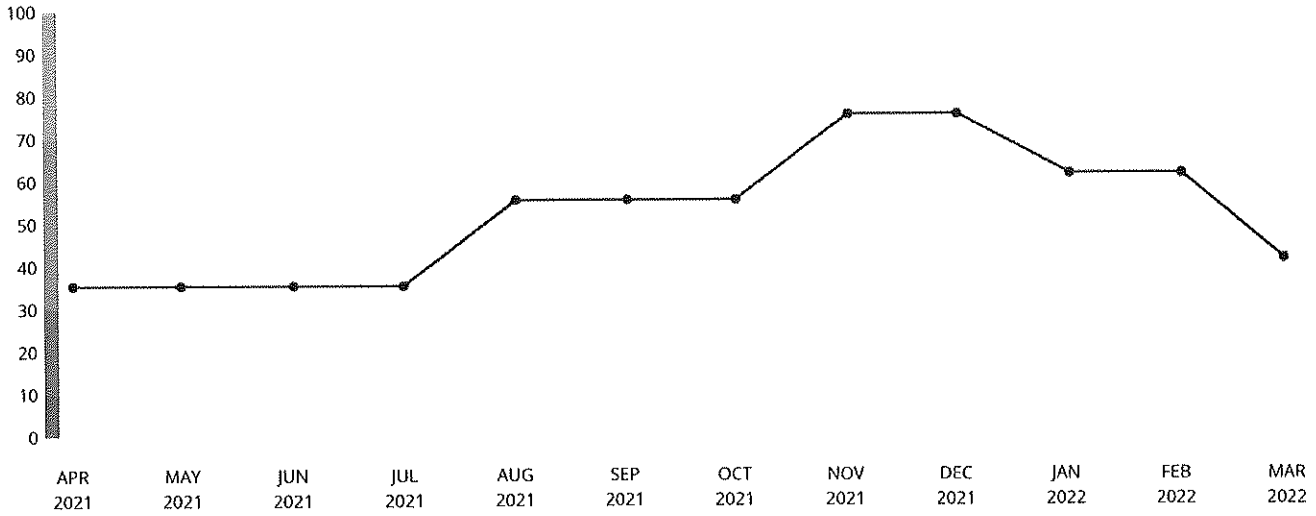
Based on a D&B Financial Stress Percentile of 42

Level of Risk	Raw Score	Probability of Failure	Compared to Businesses in D&B
MODERATE	1465	0.3%	0.48%

Business and Industry Trends

5099 - Whol durable goods

Industry Median NEW ENGLAND FIRE EQUI



SUPPLIER EVALUATION RISK RATING

6

Low Risk (1) High Risk (9)

Based on a Supplier Evaluation Risk Rating of 6

Factors Affecting Your Score

Proportion of slow payment experiences to total number of payment experiences reported

Limited business activity signals reported in the past 12 months

Evidence of open judgments

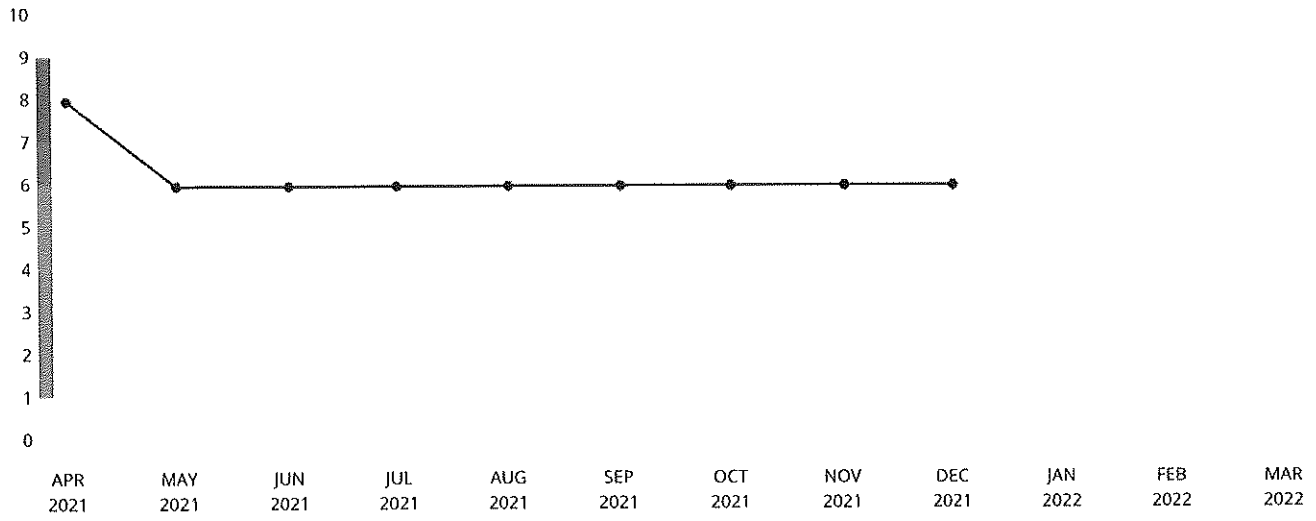
Proportion of past due balances to total amount owing

Business belongs to an industry with above average risk of ceasing operations or becoming inactive

Business and Industry Trends

5099 - Whol durable goods

Supplier Evaluation Score



D&B RATING

Current Rating as of 02-01-2017

Employee Size	Risk Indicator
1R: 10 employees and over	4: Higher than Average Risk

Previous Rating

Employee Size	Risk Indicator
1R: 10 employees and over	3: Moderate Risk

TRADE PAYMENTS

TRADE PAYMENTS SUMMARY

Based on 24 months of data

Overall Payment Behavior
6
Days Beyond Terms

% of Trade Within Terms
69%

Highest Past Due
US$ 2,500

Highest Now Owing: US$ 25,000

Total Trade Experiences: 28
Largest High Credit: US$ 25,000
Average High Credit: US$ 4,120

Total Unfavorable Comments : 0
Largest High Credit: US$ 0
Total Placed in Collections: 0
Largest High Credit: US$ 0

TRADE PAYMENTS BY CREDIT EXTENDED

$ CREDIT EXTENDED	% OF PAYMENTS WITHIN TERMS	# PAYMENT EXPERIENCES	TOTAL & DOLLAR AMOUNT
OVER 100,000	0%	0	$0
50,000 - 100,000	0%	0	$0
15,000 - 49,999	100%	2	$45,000
5,000 - 14,999	90%	4	$25,000
1,000 - 4,999	50%	5	$9,500
UNDER 1,000	43%	9	$2,900

TRADE PAYMENTS BY INDUSTRY

Collapse All | Expand All

Industry Category	Number of Payment Experiences	Largest High Credit (US$)	% Within Terms (Expand to View)
▾61 - Nondepository Credit Institutions	4	25,000	
6153 - Short-trm Busn Credit	4	25,000	100
▾47 - Transportation Services	2	2,500	
4731 - Arrange Cargo Transpt	2	2,500	0
▾45 - Transportation By Air	2	250	
4513 - Air Courier Service	2	250	92

▾99 - Nonclassifiable Establishments	2	250	
9999 - Nonclassified	2	250	0
▾73 - Business Services	1	10,000	
7389 - Misc Business Service	1	10,000	100
▾50 - Wholesale Trade - Durable Goods	3	5,000	
5084 - Whol Industrial Equip	1	5,000	100
5085 - Whol Industrial Suppl	1	2,500	100
5013 - Whol Auto Parts	1	2,500	50
▾75 - Automotive Repair, Services And Parking	2	5,000	
7538 - General Auto Repair	1	5,000	50
7536 - Auto Glass Shop	1	250	50
▾51 - Wholesale Trade - Nondurable Goods	2	1,000	
5169 - Whol Chemicals	1	1,000	0
5113 - Whol Service Paper	1	500	100
▾42 - Motor Freight Transportation And Warehousing	1	750	
4213 - Trucking Non-local	1	750	0
38 - Measuring Analyzing And Controlling Instuments; ▾Photographic Medical And Optical Goods; Watches And Clocks	1	500	
3861 - Mfg Photograph Equip	1	500	50
▾59 - Miscellaneous Retail	1	100	
5999 - Ret Misc Merchandise	1	100	100

TRADE LINES

Date of Experience ▾	Payment Status	Selling Terms	High Credit (US$)	Now Owes (US$)	Past Due (US$)	Months Since Last Sale
02/2022	Prompt	-	20,000	2,500	0	1 Month
02/2022	Prompt	-	10,000	10,000	0	1 Month
02/2022	Prompt	-	5,000	2,500	0	1 Month
02/2022	Prompt	N30	2,500	750	0	1 Month
02/2022	Prompt	-	1,000	1,000	0	1 Month
02/2022	Prompt	-	500	100	0	1 Month

02/2022	Prompt	-	100	0	0	Between 2 and 3 Months
02/2022	Prompt to Slow	-	5,000	2,500	2,500	1 Month
02/2022	Prompt to Slow	-	500	100	-	Between 2 and 3 Months
02/2022	Prompt to Slow	-	2,500	50	0	1 Month
02/2022	Slow	-	750	0	0	Between 2 and 3 Months
02/2022	-	-	250	0	0	Between 2 and 3 Months
02/2022	-	-	100	0	0	Between 2 and 3 Months
01/2022	Prompt	-	25,000	25,000	0	1 Month
01/2022	Prompt to Slow	N30	250	0	0	Between 4 and 5 Months
01/2022	-	Cash Account	2,500	0	0	1 Month
12/2021	Slow	-	1,000	0	0	Between 6 and 12 Months
12/2021	-	Cash Account	100	-	-	Between 4 and 5 Months
11/2021	-	Cash Account	50	-	-	1 Month
08/2021	-	Cash Account	100	-	-	Between 6 and 12 Months
02/2021	Prompt	-	250	100	0	1 Month
02/2021	Prompt to Slow	-	50	50	50	Between 2 and 3 Months
12/2020	Prompt	-	5,000	0	0	Between 6 and 12 Months
10/2020	Slow	-	2,500	0	0	Between 6 and 12 Months
09/2020	-	-	1,000	0	0	Between 6 and 12 Months
07/2020	Slow	-	250	250	250	-
05/2020	Prompt	-	0	0	0	Between 6 and 12 Months
05/2020	Slow	-	250	0	0	Between 6 and 12 Months

EVENTS

LEGAL EVENTS

The following Public Filing data is for information purposes only and is not the official record. Certified copies can only be obtained from the official source.

SUITS		JUDGEMENTS		LIENS		UCC FILINGS	
TOTAL	0	TOTAL	1	TOTAL	0	TOTAL	5
LAST FILING DATE	-	LAST FILING DATE	05/24/2011	LAST FILING DATE	-	LAST FILING DATE	12/15/2017

General: The public record items contained in this report may have been paid, terminated, vacated or released prior to the date this was reported. This information may not be reproduced in whole or in part by any means of reproduction.

UCC Filings: There may be additional UCC Filings in the D&B file on this company which are available by contacting 1-800-234-3867.

Suits, Liens, Judgements: There may be additional suits, liens, or judgements in D&B's file on this company available in the U.S. Public Records Database that are also covered under your contract. If you would like more information on this database, please contact the Customer Resource Center at 1-800-234-3867.

Lien: A lien holder can file the same lien in more than one filing location. The appearance of multiple liens filed by the same lien holder against a debtor may be indicative of such an occurrence.

EVENTS

Judgment - Court Judgement

Filing Date	2011-05-24
Filing Number	SCC 388332
Status	Unsatisfied
Date Status Attained	2011-05-24
Received Date	2011-07-14
Award	287
Debtors	NEW ENGLAND FIRE EQUIPMENT & APPARATUS CORP
Creditors	SEAN P. REYNOLDS, WALLINGFORD, CT
Court	SMALL CLAIMS COURT-HARTFORD, HARTFORD, CT

UCC Filing - Continuation

Filing Date	2017-12-15
Filing Number	0003217260
Received Date	2018-01-04
Original Filing Date	2008-02-22
Original Filing Number	0002619442

Secured Party	TD BANK, NA AS SUCCEESOR BY MERGER TO TD BANKNORTH, N.A., CHERRY HILL, NJ
Debtors	NEW ENGLAND FIRE EQUIPMENT & APPRATUS, CORP.
Filing Office	UCC COMMERCIAL RECORDING DIVISION, HARTFORD, CT

UCC Filing - Amendment

Filing Date	2012-09-24
Filing Number	0002897648
Received Date	2012-12-06
Original Filing Date	2008-02-22
Original Filing Number	0002619442
Secured Party	TD BANK, NA AS SUCCEESOR BY MERGER TO TD BANKNORTH, N.A., CHERRY HILL, NJ
Debtors	NEW ENGLAND FIRE EQUIPMENT & APPRATUS, CORP.
Filing Office	UCC COMMERCIAL RECORDING DIVISION, HARTFORD, CT

UCC Filing - Amendment

Filing Date	2012-09-21
Filing Number	0002897279
Received Date	2012-10-04
Original Filing Date	2008-02-22
Original Filing Number	0002619442
Secured Party	TD BANKNORTH, N.A., GLASTONBURY, CT
Debtors	NEW ENGLAND FIRE EQUIPMENT & APPRATUS, CORP.
Filing Office	UCC COMMERCIAL RECORDING DIVISION, HARTFORD, CT

UCC Filing - Original

Filing Date	2008-02-22
Filing Number	0002619442
Received Date	2008-04-04
Collateral	All Negotiable instruments including proceeds and products - All Inventory including proceeds and products - All Account(s) including proceeds and products - All Timber including proceeds and products - and OTHERS
Secured Party	TD BANKNORTH, N.A., GLASTONBURY, CT
Debtors	NEW ENGLAND FIRE EQUIPMENT & APPRATUS, CORP.
Filing Office	UCC COMMERCIAL RECORDING DIVISION, HARTFORD, CT

UCC Filing - Amendment

Filing Date	2006-03-10
Filing Number	0002380857
Received Date	2006-04-11
Original Filing Date	2001-05-10
Original Filing Number	0002068061
Secured Party	HME, INC., WYOMING, MI
Debtors	NEW ENGLAND FIRE EQUIPMENT & APPARATUS
Filing Office	UCC COMMERCIAL RECORDING DIVISION, HARTFORD, CT

COMPANY EVENTS

The following information was reported on: 07-18-2020

The Connecticut Secretary of State's business registrations file showed that New England Fire Equipment & Apparatus, Corp. was registered as a Corporation on August 07, 1995.

Business started 1985 by James E Feehan III. 100% of capital stock is owned by officers.

JAMES E FEEHAN III born 1962. Graduated from Norwich University, Norwich, CT in 1984 with a BS degree. 1985-present active here.

KAREN L FEEHAN. Antecedents undetermined.

SPECIAL EVENTS

12-12-2020

NEW ENGLAND FIRE EQUIPMENT AND APPARATUS CORP was reported by the SBA as a recipient of a loan for $338,027 from TD Bank, National Association on 04/10/2020 under the Paycheck Protection Program as authorized under the CARES Act of 2020.

07-18-2020

On July 6, 2020, the SBA announced that this business was approved for a loan between $150K - $350K from TD Bank, National Association through the SBA's Paycheck Protection Program, as part of the CARES Act, in response to the COVID-19 pandemic. The amount of the actual loan may vary from the approved amount.

Financials

D&B currently has no financial information on file for this company.

COMPANY PROFILE

COMPANY OVERVIEW

D-U-N-S 61-353-5830	**Mailing Address** 10 Stillman Rd, North Haven CT 06473, US	**Annual Sales** -
Business Form Corporation (US)	**Telephone** (203) 239-5678	**Employees** 17
Date Incorporated 08/07/1995	**Fax** -	**Age (Year Started)** 37 years (1985)
State of Incorporation Connecticut	**Website** -	**Named Principal** JAMES E FEEHAN III, PRES-TREAS
Ownership -	**Line of Business** Whol durable goods	**SIC** 5099

OWNERSHIP

This business is not currently a part of a family tree.

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Options

Project: Ledyard Tanker
Department: Ledyard Fire Co Dist #1, CT
Dealership: New England Fire Equipment & Apparatus

Prepayment Discount Type	Prepay	Discount
100% Contract Prepay, Contract Signing	572,777	12,835
80% Contract Prepay, Contract Signing	468,490	10,268
50% Contract Prepay, Contract Signing	292,806	6,418

Customer Specifications

Ledyard Volunteer Fire Company and the Town of Ledyard

Bid Specifications
for a
2022 Tanker/Pumper Fire Apparatus

#2022-15

Ledyard Fire Company New Apparatus Committee

Fire Chief	Jonathan Mann
Chairperson	Todd Willis
Chairperson	Zachary Willis

Town Of Ledyard

Mayor	Mr. Fred Allyn III
Administrator of Emergency Services	Mr. Stephen Holyfield

Ledyard Fire Company District #1 INC.

11 Fairway Dr.
Ledyard, CT 06339
(860)464-9222

and the

Town of Ledyard

INVITATION TO BID

#2022-15

The Ledyard Fire Company District #1 Inc. is currently seeking bids for the purchase of a Class A pumper/tanker in accordance with the Ledyard Fire Company District #1 Inc.

GENERAL INSTRUCTIONS

It is the sole responsibility of the bidder that his or her proposal reaches the destination listed above on time. No phone bids or late proposals will be accepted. Postal delays or delivery schedules will not be considered justifiable reasons for late bids. Only one bid per vendor will be acceptable. Two or more bids by one vendor is unacceptable and will be cause for all bids from that bidder to be ***REJECTED. "NO EXCEPTIONS"***. Bids are to be sealed and marked FIRE APPARATUS BID. Two hard copies shall be received no later than August 4, 2022, at 2:00 p.m. at which time the bids will be opened and read aloud in the Mayor's Office. Any bids received after August 4, 2022, at 2:00 p.m. will be returned, unopened, to the bidder. The bids will be reviewed by the Ledyard Fire Company District #1 Inc. Truck Committee within 30 days.

Bidders must submit their proposals in writing and in accordance with the enclosed specifications. The Town of Ledyard reserves the rights to reject any and all bids which are not considered in the best interest of the Town of Ledyard and the Ledyard Fire Company District #1 Inc.

INTENT OF BID SPECIFICATION

It is the intent of these specifications to describe the furnishing of a Class A Pumper Tanker Fire Engine. The apparatus shall be the manufacturers latest "Top of the line" model meeting these specifications. The unit shall be ready for immediate operation at the time of delivery the following details are assumed to be in addition to requirements of NFPA Standard #1901. Any questions and/or apparent conflicts shall be brought to the attention of the Apparatus Committee, Ledyard Fire Company 11 Fairway Dr Ledyard CT, 06339 at least five working days prior to the opening of the bids. Items not specifically covered in the following specifications shall meet the requirements of NFPA Standards #1901 current edition.

The truck shall be provided with the minimum equipment required by category A of the sectors which pertain to the type of apparatus being specified unless otherwise called out in the following specifications. Any specified equipment shall be taken to intend that said equipment are the only items to be supplied.

Each bidder shall provide proof that their manufacturer maintains and follows current NFPA Standard #1901 and Federal/State of Connecticut Department of Transportation standards. "NO EXCEPTIONS".

The purpose of this specification is to cover the furnishing and delivery to the Ledyard Fire Company District #1 Inc. of complete and soundly engineered apparatus equipped as hereinafter specified. Each bidder is to provide with the bid proof of full-time employment of a registered licensed, certified engineer qualified in the state of the manufacturer's location.

The construction, materials and equipment in these specifications have been researched and found to be acceptable and in the best interests of the Ledyard Fire Company District #1 Inc. In the consideration of material considered equal to, the final decision of equality shall be made by

Ledyard Fire Company District #1 Inc. and shall be final. We reserve the right to accept or reject any and all bids in the process of selecting the unit which will best serve the town of Ledyard, Connecticut. We reserve the right to accept the "HIGH" bid if it is deemed to be the best unit in regard to these specifications.

Each bidder shall list all exceptions on a separate sheet titled "Exceptions To Bid Specifications". The list shall include any and all **OR EQUAL** items. All such exceptions shall be explained in full to the satisfaction of the accepting authority, Ledyard Fire Company District #1 Inc. Truck Committee. Bids taking total exception to these specifications will be rejected.

It shall be the responsibility of the manufacturer that the apparatus meets all Federal Department of Transportation standards in effect at the time the unit leaves the factory as well as any and all State of Connecticut Department of Transportation requirements.

The importance of public safety associated with firefighting and rescue apparatus covered by this specification will be excluded from consideration, when evaluating bids, manufacturers of apparatus that have not fully field tested such apparatus for at least 5 years and have been in the business of manufacturing such apparatus for a minimum of 10 consecutive years. "NO EXCEPTIONS".

Bi-metal manufacturing of the apparatus will not be acceptable. Bidder must not subcontract any portion of the manufacture of the apparatus.

When a commercial chassis is specified, the bidder is to provide a complete truck list and engineering data with proof that the chassis GVWR and frame rail RBM is sufficient to carry the completed apparatus and equipment with water in accordance with the standards set forward in NFPA Standard # 1901. The above data shall be provided for any chassis being bid for this unit.

The standard set for field testing shall apply to commercial chassis provider also. No exceptions will be allowed, this includes body fabrication and painting.

As a continuous operation of the apparatus contemplated is of the utmost importance, it is necessary that the successful bidder be able to guarantee the furnishing of replacement parts for a period of not less than twenty years. Accordingly, bidders shall provide proof of their ability to render prompt service. The bidder shall also provide proof of operation of a service facility fully equipped to repair fire apparatus and provide 24 hour a day emergency service.

Bidders must be able to provide most service work in the Ledyard Fire Company District #1 Inc. station where the apparatus is garaged by use of road service. All major service shall be able to be done at a service center operated by the manufacturers dealer network within 75 miles of the apparatus. Due to the legal liability of the service work, ALL service work is to be done within the State of Connecticut. This is to ensure any litigation which may arise in the future will indisputably fall under the cognizance of the laws and court system of the State of Connecticut. It shall also be understood that no service work other than component warranty shall be sub-contracted out. "NO EXCEPTIONS".

All bidders shall provide with their bid a financial statement. This shall be by means of a current Dunn and Bradstreet Report as well as a current income and balance report of the firm.

The bidder shall provide a certificate of insurance for product liability for not less than $3,000,000.00 (THREE MILLION DOLLARS). "NO EXCEPTIONS". All bidders must show proof of Worker's Compensation Insurance, a minimum of $100,000/$300,000, Bodily Injury Liability Insurance, and a minimum of $50,000 Property Damage Liability.

PERFORMANCE AND TEST

A road test will be conducted with the apparatus fully loaded and a continuous run of ten (l0) miles or more will be made under all driving conditions, during which time the apparatus shall show no loss of power or overheating. The transmission drive shaft or shafts, and rear axles shall run quietly and be free from abnormal vibration or noise throughout the operating range of the apparatus.

A. The apparatus, when fully equipped and loaded, shall have not less than 25 % nor more than 50 % of the weight on the front axle, and not less than 50 % nor more than 75 % on the rear axle.

B. The apparatus must be capable of accelerating to 45 mph from a standing start within 25 seconds on a level concrete highway without exceeding the maximum governed rpm of the engine.

C. The service bakes shall be capable of stopping fully loaded vehicle in 35 feet at 20 mph on level concrete highway.

D. The apparatus, fully loaded, shall be capable of obtaining a speed of 60 mph on a level concrete highway with the engine not exceeding its governed rpm (full load).

FAILURE TO MEET TEST REQUIREMENTS

In the event the apparatus fails to meet the test requirements of these specification on the first trials, second trials may be made at the option of the bidder within thirty (30) days of the date of the first trials. Such trials shall be final and conclusive and failure to comply with these requirements shall be cause for rejection. Failure to comply with changes as the purchaser may consider necessary to conform to any clause of the specifications, within thirty (30) days after notice is given to the bidder of such changes shall also be cause for rejection of the apparatus.

Permission to keep or store the apparatus in any building owned or occupied by the purchaser or its use by the Fire Company during the above specified period with the permission of the bidder shall not constitute acceptance.

MANUALS

The contractor shall supply at time of delivery at least two (2) copies of a complete operation and service manual covering the completed apparatus as delivered and accepted, including but not limited to, the chassis, pump, wiring diagrams, lubrication charts, and firefighting equipment delivered with the apparatus. Copies may be (1) Digital and (1) Hardcopy.

BONDS

Bidders shall provide a Bid Bond in the amount of 10% of the bid price. The successful bidder shall provide at the time of the contract award, a performance bond in 'the amount of 100% of the final bid price. A certified bank letter stating the manufacturers bond rate/premium (per thousand) shall be provided with the bid.

The bidder shall provide a list of apparatus which it has delivered in Connecticut within the last five years.

The bidder shall state the delivery time of his proposed apparatus both in calendar day and **NO LATER THAN** delivery date. The Ledyard Fire Company District reserves the right to require the successful bidder to enter into contract with the town inclusive of a Penalty Clause stipulating a mandatory deduction of a minimum of $500.00 per day for each and every day the unit delivery goes past the stated delivery date.

BOTH CHASSIS AND BODY MUST BE BUILT IN THE UNITED STATES OF AMERICA BY A COMPANY THAT IS ONE HUNDRED PERCENT HELD AND OWNED BY AN AMERICAN CORPORATION. MANUFACTURERS THAT DO NOT MEET THIS REQUIREMENT NEED NOT SUBMIT AS THAT BID WILL BE REJECTED IMMEDIATELY WITH NO FURTHER EXPLAINATION GIVEN OR REQUIRED.

Each bid shall also be accompanied by a sample corner piece. This shall be a cut away section showing as a minimum to scale the construction of the bidder's body, sub body, door construction, door hinge, hold open device, door latch, wire runs, rub rail and full stage paint process. It shall remain in the truck committee chairman's possession for a minimum of 14 calendar days for evaluation by the Ledyard Fire Company District #1 Inc. Failure to provide the cross section shall be cause for rejection of your bid.

DELIVERY

As stated, the unit shall be ready for immediate operation. To ensure this requirement is met in its full intent each bidder shall submit with his bid a detailed description of his delivery procedure. We have set the following criteria to be met by the vendor as a minimum. No exceptions to these minimum requirements will be acceptable.

- The unit is to be driven under its own power from point of manufacture to deliver at the Ledyard Emergency Services Building, 11 Fairway Dr, Ledyard CT 06339.

- The unit shall have been inspected and completely serviced prior to delivery by the Ledyard Fire Company District #1 Inc. private service center at the expense of the manufacturer.

- Complete servicing shall include as a minimum, fluid levels, and filters as required.

- Complete inspection of all vehicle systems.

- The entire unit shall be cleaned prior to delivery.

- A four-hour pump test shall be conducted. This will be from draft not to exceed more than ten-foot lift, hydrant type of test will not be acceptable.

- An eight-hour training session on full operation of apparatus is to be conducted. Pump time not included in these eight hours.

TESTING COMPLIANCE STANDARD

Hose Bed Capacity

The hose bed shall have the capacity to store the following hose from the driver side to the officer side. 500' of 3" and 1000' of 5" supply hose.

Overall Height Restriction

The apparatus shall have overall height restriction of 11' 6" (unloaded condition).

The height of the apparatus shall be measured with no water/foam in the water/foam tank, no equipment, no ground ladders and no hoses.

Overall Length Restriction

The completed unit shall have a maximum overall length restriction of 35'.

NFPA Compliance

The supplied components of the apparatus shall be compliant with the NFPA 1901 current edition.

Equipment Capacity

Equipment allowance on the apparatus shall be 1000 lbs. This allowance is in addition to the weight of the hoses and ground ladders listed in the shop order as applicable.

CHASSIS PREP

Kenworth Commercial Chassis Preparation

The commercial chassis shall be made ready for installation of components required by the fire apparatus specifications such as warning lights and sirens, cab wire harness, etc. Preparation shall also include relocating of components as necessary to meet the fire apparatus requirements such as exhaust tail pipe, air system components, batteries, etc.

BUMPERS

Front Bumper

The vehicle shall be equipped with a one-piece 10" high bumper, made from 10 gauge (0.135" nominal) polished (chrome finish) stainless steel for corrosion resistance, strength, and long-lasting appearance. It shall be mounted directly to the front frame extensions for maximum strength. The bumper shall incorporate two (2) stiffening ribs.

Bumper Extension

The front bumper extension shall be approximately 10" from the face of the cab as required.

Bumper Gravel Shield

The extended front bumper gravel shield shall be made of 3/16" (.375") aluminum tread plate material.

Bumper Guides

Two chrome bumper guides with lights shall be installed at the furthest corner of the bumper. They shall be removable and easily replaced.

TIRE OPTIONS

Tire Pressure Indicators

The apparatus shall be provided with Real Wheels AirGuard LED tire pressure indicating valve stem caps. When the tire is under inflated by 5-10 PSI, the LED indicator on the cap shall flash red. The indicator housings shall be shock resistant and constructed from polished stainless steel. The indicators shall be calibrated by attaching to valve stem of a tire at proper air pressure per load ratings and easily re-calibrated by simply removing and re-installing them during service.

AIR SYSTEM OPTIONS

Air Inlet Auto-Eject

A Kussmaul Air Auto-Eject #091-28 airline disconnect shall be installed for the air inlet connection. The airline will automatically disconnect when the vehicle is started. A Red weatherproof gasketed cover, which automatically closes when the airline is ejected, shall be supplied. Location shall be determined by committee at a later date.

Isolated Auxiliary Air Reservoir

The air system shall have an additional 1738 cu. in. isolated reservoir. The supply side of the reservoir shall be equipped with a check valve and an 85-psi pressure protection valve.

Specified options shall be plumbed to the isolated air tank.

Auxiliary Air Tank Plumbing

The auxiliary air reservoir shall be plumbed to air primer.

Air Horns

Dual stutter air horns shall be provided, connected to the chassis air system. The horns shall be mounted in the front bumper of the vehicle. A pressure protection valve shall be installed to prevent the air brake system from being depleted of air pressure. Air horns shall be controlled by the steering wheel horn, a switch shall be provided to switch from air horn to factory horn. In addition to a pull chain that is accessible for both the driver and officer.

ENGINES & TRANSMISSIONS

Vehicle Speed

The maximum speed shall be electronic limited to 60 MPH as required by NFPA 1901.

Engine

The chassis shall be equipped with a Cummins X15 Fire/Emergency six-cylinder, EPA compliant, electronic engine.

The engine rating shall be 565 HP rating, 1850 lb-ft Torque @ 1150 RPM, 2100 RPM Governed Speed

Transmission

The chassis shall have an Allison 4000 EVS-P Transmission, Gen 5 for Fire and Emergency Applications.

CHASSIS OPTIONS

Rear Tow Eyes

Two (2) heavy duty tow eyes made of 3/4" (0.75") thick steel having 2-1/2" diameter holes shall be mounted below the body at the rear of the vehicle to allow towing (not lifting) of the apparatus without damage. The tow eyes will be welded to the lower end of a 5" steel channel that is bolted at the end of the chassis frame rails. The tow eyes shall be painted chassis black.

Front Tow Eyes

Two (2) heavy duty painted front tow eyes (not hooks) shall be securely bolted to the front chassis frame rail extensions to allow towing (not lifting) of the apparatus without damage. They shall be mounted in the downward position. In addition to two heavy duty rated shackles to utilize for towing.

Wheels and Tires

Alcoa brand aluminum dura-brite wheels shall be installed.

CAB MODEL

Must be a 2DR Kenworth model T880 chassis 6x4 tandem axle, cab width suitable for high horsepower engine and suitable for fire apparatus applications.

Fuel Tank

Fuel tank shall be mounted behind the rear most axle between the frame rails. Fuel fill shall be run on the driver's side behind the rear most axle. A stainless-steel hinged door shall cover the fill neck.

Custom Battery Box/ Driver's Step

A custom fabricated battery box with step shall be installed on drivers' side where the factory fuel tank was removed. Shall be constructed out of aluminum channel and all exterior surfaces shall be made to match officer side steps.

CAB DOOR OPTIONS

Cab Door Interior Striping

Reflective striping shall be installed on commercial cab doors, visible when the door is open, meeting NFPA requirement of 96 sq. in. coverage for each door.

MISC EXTERIOR CAB OPTIONS

Label ``Diesel Fuel Only``

Located above each fuel filler housing shall be a metallic label that designates" Diesel Fuel Only" requirements. It shall be black with white or equivalent contrasting letters a minimum of 1/2" high.

SEATS

Driver's seat shall be a Kenworth Air ride seat (Most current model).
Officers seat shall be a non-air ride Kenworth seat.

MISC. INTERIOR CAB OPTIONS

Cab Console

The console shall be centrally located and shall allow the driver and/or officer access to all components while seated with seat belts secured.

The console shall be constructed of aluminum smooth plate with a black Zolatone finish. The top surface shall have a non-reflective material for increased visibility of labels and controls.

All switches located on the console shall be clearly labeled and shall be back lit for easy operation and visibility. Switch locations will be determined and approved by the apparatus committee at a later date.

All Camera and Dump functions shall be integrated into the console. Location will be provided for the install of three mobile radio remote heads.

CAB ELECTRICAL OPTIONS

Auto-Eject Battery Charger Receptacle

The battery charger receptacle shall be a Kussmaul 20-amp NEMA 5-20 Super Auto-Eject #091-55-20-120 with a cover. The Super Auto-Eject receptacle shall be completely sealed and have an automatic power line disconnect.

The receptacle location shall be determined at a later date, the cover color shall be red.

Antenna Base

Style and placement will be discussed at a further date.

Battery Charger

A fully automatic Kussmal charging system shall be installed on the apparatus. The system shall have a 120-volt, 60 hertz, 7 amp AC input with an output of 40 amps 12 volts DC. The battery charging system shall be connected directly to the shoreline to ensure the batteries remain fully charged while the vehicle is in the fire station or firehouse.

The system shall include a remote charging status indicator panel located on the lower area of the driver's seat. Display will be visible from the ground level when the door is opened.

Cab Dome Lights

A Whelen model 60CREGCS LED dome light shall be installed. The light shall have twelve (12) high intensity Super LEDs; six (6) white and six (6) red. Two (2) switches shall be provided on the face of the light to activate the red or white lights. The white light shall activate with appropriate cab door and light assembly switch, the red light activates with light assembly mounted switch only.

There shall be two (2) mounted in the cab, one (1) above the driver and one (1) above the officer ceiling.

BODY CONSTRUCTION

Body corners shall be 6063-T5 extruded aluminum corner sections with a 3/16" (0.188") wall thickness. The side body extrusions shall be 6063-T5 aluminum tubing with a 3/16" (0.188") wall thickness and 3/16" (0.188") outside corner radius. The corners and sides shall be welded both internally and externally at each joint using an aluminum alloy welding wire.

The assembly shall be constructed entirely of aluminum extrusions and interlocking aluminum plates. This aluminum modular design shall provide a high strength-to-weight ratio for increased equipment carrying capacity

Body shall be completely sanded and deburred to assure a smooth finish and painted job color.

Each compartment seam shall be sealed using a permanent pliable silicone caulk. The walls of each compartment shall be machine-louvered for adequate ventilation.

An externally mounted compartment top shall be provided and constructed of a 1/8" (.125") aluminum treadplate.

BODY COMPARTMENTS

Driver Side Compartments

The four (4) driver side compartments shall be constructed from 3003 H14 1/8" (.125") smooth aluminum plate. The compartments shall be modular in design and shall not be a part of the body support structure. Compartment floor shall be covered with 1/8" (.125") aluminum diamond plate.

There shall be one (1) full height compartment ahead of the rear wheels. This compartment shall be approximately 36" wide 26" deep on the bottom and 14" deep on the top.

There shall be (2) compartments located above the rear wheels. The compartment shall be equally sized and centered above the rear wheels.

There shall be one (1) Full height compartment located to the rear of the rear wheels. The compartment width shall be determined by body length specifications and the distance between the rear wheels and end of the body. Depth shall be approximately 26" on the bottom and 14" on the top.

BODY COMPT RIGHT SIDE

Officer Side Compartments

The four (4) officer side compartments shall be constructed from 3003 H14 1/8" (.125") smooth aluminum plate. The compartments shall be modular in design and shall not be a part of the body support structure. Compartment floor shall be covered with 1/8" (.125") aluminum diamond plate.

There shall be one (1) compartment located ahead of the rear wheels. This compartment shall be approximately 36" wide, depth shall be approximately 26" and height shall be determined by the height of the wheel well compartments.

There shall be two (2) compartments located above the rear wheels, The compartments shall be no taller than 12" and shall be centered above the rear wheels

There shall be one (1) compartment located to the rear of the rear wheels. The compartment width shall be determined by body length specifications and the distance between the rear wheels and end of the body. Depth shall be approximately 26" and height shall be determined by the height of the wheel well compartments.

Compartment Storage Provisions

Pac-Trac mounting system shall be installed on upper back wall on all driver side compartments.

Four (4) horizontal slide out trays (250 lb. rating) shall be provided and installed by the dealer, location to be determined at a later date by apparatus committee.

One (1) double sided vertical swing out tool board shall be installed by the dealer in one of the driver side compartments above the wheel wells. The tool board shall be made of Pac-trac. Orientation and location shall be determined by the apparatus committee at a later date.

One (1) full depth adjustable shelf shall be provided. Location shall be determined by the apparatus committee at a later date.

Two (2) half depth adjustable shelves shall be provided. Location shall be determined by the apparatus committee at a later date.

All Shelves and drawers shall have black Dri-Deck installed prior to apparatus delivery.

BODY COMPT REAR

Tailboard/Tailboard Step

A tailboard step shall be provided at the rear of the body. The tailboard shall 16" in depth and in accordance with NFPA in both step height and stepping surface. The maximum rear step height to the tailboard shall not exceed 24".

The tailboard step shall be formed from 3/16" (0.188") aluminum treadplate and shall be reinforced with 6063-T5 1.5" x 3" aluminum extrusion. The tailboard shall be in accordance with current NFPA requirements and shall include a multi-directional aggressive gripping surface incorporated into the diamond plate. The surface shall extend vertically from the diamond plate sheet a minimum of 1/8" (0.125"). Gripping surfaces shall be circular in design, a minimum of 1" diameter and on centers not to exceed 4".

The tailboard step shall be bolted on to the body from the underside assuring a clear surface and shall be easily removable for replacement in the case of damage.

Beavertails

Two (2) angled beavertails shall be provided at the rear of the body. The beavertails shall be a part of the body framework and provide additional support to the tailboard. Each beavertail shall be constructed of formed 1/8" (0.125") aluminum treadplate and includes removable outside panels for access to internal wiring and bolt-on accessories.

Rear Access Handrails

Handrails shall be provided at the rear of the body to assist ground personnel accessing the tailboard step and hose bed area. Each handrail shall be constructed of 6063T5 1.25" OD anodized aluminum tube, with an integral ribbed surface to assure a good grip for personnel safety and shall be mounted between chrome stanchions.

The handrails shall be located- two (2) handrails, one (1) on each side, appropriately sized handrail mounted vertical on the trailing edge of the body and appropriately sized handrail(s) mounted horizontal below the rear hose bed opening.

Rear End Assembly

The rear end shall be set-up as tanker and shall have no rear body compartment.

The rear end shall be constructed of vertical and horizontal extrusions with interlocking smooth plate upper and lower panels. The lower center area shall have a smooth plate panel area that shall allow for a Newton tank dumping application.

The vertical, horizontal, and smooth plate panels shall have a sanded finish.

DOORS

Single Compartment Door

A single compartment door shall be constructed using a box pan configuration. The outer door pan shall bevel and shall be constructed from 3/16" (0.188") aluminum plate. The inner door pan shall be constructed from 3/32" (0.090") smooth aluminum plate and shall have nutsert fittings to attach hold-open hardware. The inner pan shall have a 95-degree bend to form an integral drip rail.

The compartment door shall have a 1" x 9/16" (1" x 0.43") closed-cell "P" EPDM sponge gasket meeting ASTM D-1066 2A4 standards installed around the perimeter of the door to provide a seal that is resistant to oil, sunlight, and ozone.

A drain hole shall be installed in the lower corner of the inside door pan to assist with drainage.

A polished stainless-steel Hansen D-ring style twist-lock door handle a with #459 latch shall be provided on the door. The 4-1/2" (4.5") D-ring handle shall be mounted directly to the door latching mechanism with screws that do not penetrate the door material for improved corrosion resistance.

The compartment door shall be securely attached to the apparatus body with a full-length stainless steel 1/4" (0.25") rod piano-type hinge isolated from the body and compartment door with a dielectric barrier. The door shall be attached with machine screws threaded into the doorframe. The door shall have gas shock-style hold-open devices.

An anodized aluminum drip rail shall be mounted over the compartment opening to assist in directing water runoff away from the compartment.

The door will be installed on the driver's side forward upper compartment. Door will open upwards.

Double Compartment Door

Double compartment doors shall be constructed using a box pan configuration. The outer door pans shall bevel and shall be constructed from 3/16" (0.188") aluminum plate. The inner door pans shall be constructed from 3/32" (0.090") smooth aluminum plate and shall have (Nutsert) fittings to attach hold-open hardware. The inner pans shall have a 90-degree bend to form an integral drip rail.

The compartment doors shall have a 1" x 9/16" (1" x 0.43") closed-cell "P" EPDM sponge gasket meeting ASTM D-1066 2A4 standards installed around the perimeter of the doors to provide a seal that is resistant to oil, sunlight, and ozone.

A drain hole shall be installed in the lower corner of the inside door pan to assist with drainage.

A polished stainless-steel Hansen D-ring style twist-lock door handle a with #459 latch shall be provided on the primary door. The 4-1/2" (4.5") D-ring handle shall be mounted directly to the door latching mechanism with screws that do not penetrate the door material for improved corrosion resistance.

The secondary door shall have a dual stage rotary latch with a 750 lb rating to hold the door in the closed position. The latch shall be mounted at the top of the door. A stainless-steel paddle style handle shall be mounted on the interior pan of the door to actuate the rotary latch. The paddle handle shall be connected to the rotary latch by a 5/32" (.156") diameter rod. Cable actuation shall be deemed un-acceptable due to the potential for cable stretch and slippage. The striker pin shall be 3/8" (.38") diameter with slotted mounting holes for adjustment.

Double door latch to have latch brackets fabricated from .125 aluminum smooth plate, installed with "PULL" tags #1032993 for left side and #1032294 for right side.

The compartment doors shall be securely attached to the apparatus body with a full-length stainless steel 1/4" (0.25") rod piano-type hinge isolated from the body and compartment doors with a dielectric barrier. The doors shall be attached with machine screws threaded into the doorframe.

The doors shall have a gas shock-style hold-open device. The gas shocks shall have a 30 lb. rating and be mounted near the top of the door (when possible).

An anodized aluminum drip rail shall be mounted over the compartment opening to assist in directing water runoff away from the compartment.

These doors will be installed on the officer's side lower front and rear, the driver's side lower front and rear.

TRAYS

Running board Suction Tray

A running board suction hose storage tray "floating style" shall be provided and located on the officer side running board.

The tray shall be "floating style" mounted and constructed of 1/8" (.125") aluminum diamond plate (exterior) with a smooth sanded surface interior. The bottom of the tray shall have removable aluminum slats and drain holes to allow water drainage from hose stored in the tray. The tray shall have a 3" tapered front corner to protect tray against debris.

COVERS

Rear Hose Bed Cover

A cover constructed of heavy-duty black nylon cargo netting shall be installed at the rear apparatus hose bed.

The bottom of the cargo netting shall be mechanically attached to the hose bed. The cover shall be attached to comply with the latest edition of NFPA 1901.

Cover shall secure the hose load at the rear open back of the hose bed and shall compliment the separate top cover that secures top of body open areas over hose load.

NFPA Hose Bed Cover

The hose bed area will be covered by a black canvas cover secured on three sides. Cover will display the unit number in a contrasting (white) lettering.

The water tank fill tower(s) shall be accessible with the cover in the closed position through a Velcro opening.

The covers shall be secured in place to comply with the latest edition of NFPA 1901

Cross Lay Cover

A cross lay cover shall be provided for the cross lay storage area of the pump module. The cross lay cover shall be provided in compliance with NFPA 1901.

The cross lay cover shall be constructed from black canvas.

Cross Lay Cover - Sides

A pair of covers constructed of heavy-duty black nylon cargo netting shall be installed over the side openings of the apparatus cross lay.

The covers shall be secured in place to comply with the latest edition of NFPA 1901.

Running Board Tray Securing Strap

A heavy-duty black nylon strap with an aluminum quick-release buckle shall be provided for the running board hose tray. The strap shall be attached to the inboard side of the tray as low as practical to allow cinching of strap for securing tray contents and shall not reduce the overall tray capacity.

Location: officer side running board.

PUMP MODULE

Pump Module Width

Pump module shall be a maximum of 50" wide.

Pump Module Frame

An extruded aluminum pump module shall be provided and located forward of the apparatus body. The pump module shall be constructed entirely of welded aluminum alloy extrusions and interlocking aluminum plates. The pump module framework shall consist of 1.5" x 3" x .188" wall, 1.5" x 3" x .375" wall with center web and 3" x 3" x .188" wall extrusions.

The pump module design and mounting shall be separate from the body to allow the pump module and body to move independently of each other in order to reduce stress from frame twisting and vibration.
The exterior surface of the pump module framework shall have a sanded finish.

Pump Module Mounting

The pump module shall be attached to the chassis using four (4) center bonded isolation mounts and a steel mounting frame. The isolation mounts shall be 2.75" diameter and mount to the chassis with two (2) 4" x 4" x .312" A36 steel angles.

Pump Access

A pump service access door shall be provided at the front of the pump module. The door shall be secured with two (2) thumb latches. (Access door not provided on fixed cab applications)

Pump Module Running Boards

The pump module shall include a running board on each side. The running boards shall be in accordance with NFPA in both step height and stepping surface. The running boards shall be formed from .125" aluminum treadplate.

Stepping Surface

Each running board shall include a multi-directional, aggressive gripping surface incorporated into the treadplate. The surface shall extend vertically from the diamond plate sheet a minimum of .125". Gripping surfaces shall be circular in design, a minimum of 1" diameter and on centers not to exceed 4". Each running board shall be bolted on to the pump module and be easily removable for replacement in the case of damage.

Pump Panel Opening

The panel opening on the pump module shall be 39" wide.

Pump Module Height

The pump module height shall be 80".

PUMP PANELS

Zolatone Pump Panels

The driver and officer side pump panels shall have a black zolatone painted finish.

Pump Access Door

The officer side pump module shall have a three (3) piece panel, one (1) above the discharge outlets, one (1) encompassing the discharges and intakes and one (1) low for bleeder valves.

The upper two (2) pump panel sections shall have a vertical stainless-steel piano type hinge with 1/4" pins along the forward edge of the pump module. The hinges shall be" staked" on every other knuckle to prevent the pin from sliding. The panels shall have push button style latches to secure the panels in the closed position. The upper panel shall have one (1) pneumatic shock to hold the panel in the open position.

MISC PUMP PANEL OPTIONS

Pump Panel Tags

Color coded pump panel labels shall be supplied to be in accordance with NFPA 1901 compliance.

PUMP MODULE OPTIONS

Flex Joint

The area between the pump modules and body shall include a rubber flex joint.

Air Horn Switch

A heavy duty weatherproof push-button switch shall be installed at the pump operator`s panel to operate the air horns.

The switch shall be labeled "Evacuation Alert".

Location: driver side pump panel.

Two Cross Lay Hose bed

Two (2) cross lay hose beds shall be provided on the pump module. The two (2) forward cross lay areas shall each have a capacity for up to 200` of 1.75" double-jacket fire hose single stacked.

The cross lay floor and side walls shall be constructed of 3/16" (.188) smooth aluminum plate. The floor shall be slotted to prevent the accumulation of water and allow for ventilation of wet

hose. One (1) 1/4" (.25") smooth aluminum plate fixed dividers with a sanded finish shall be provided to separate the two (2) hose storage areas.

WATER TANK

Tower Locations

Fill tower locations. Water fill tower to be located driver side of hose bed.

3000 Gallon Water Tank

A 3000 gallon (U.S.) "T" booster tank shall be supplied.

The booster tank shall be constructed of polypropylene material. The booster tank shall be completely removable without disturbing or dismounting the apparatus body structure. The top of the booster tank is fitted with removable lifting assembly designed to facilitate tank removal.

The booster tank top, sides, and bottom shall be constructed of a minimum 1/2" (0.50") thick black UV-stabilized copolymer polypropylene. Joints and seams shall be fused using nitrogen gas as required and tested for maximum strength and integrity. The tank construction shall include technology wherein a sealant shall be installed between the plastic components prior to being fusion welded. This sealing method will provide a liquid barrier offering leak protection in the event of a weld compromise. The tank cover shall be constructed of 1/2" thick polypropylene and UV stabilized, to incorporate a multi-piece locking design, which allows for individual removal and inspection if necessary. The tank cover(s) shall be flush or recessed 3/8" from the top of the tank and shall be fused to the tank walls and longitudinal partitions for maximum integrity. Each one of the covers shall have hold downs consisting of 2" minimum polypropylene dowels spaced a maximum of 40" apart. These dowels shall extend through the covers and will assist in keeping the covers rigid under fast filling conditions.

The tank shall have a combination vent and manual fill tower with a hinged lid. The fill tower shall be constructed of 1/2" polypropylene and shall be a typical dimension of 8" x 8" outer perimeter (subject to change for specific design applications). The fill tower shall be blue in color indicating that it is a water-only fill tower. The tower shall have a 1/4" thick removable polypropylene screen and a polypropylene hinged cover. The capacity of the tank shall be engraved on the top of the fill tower lid.

The booster tank shall have two (2) tank plumbing openings. One (1) for a tank-to-pump suction line with an anti-swirl plate, and one (1) for a tank fill line. All tank fill couplings shall be backed with flow deflectors to break up the stream of water entering the tank, and be capable of withstanding sustained fill rates per the tank fill inlet size.

The sump shall be constructed of a minimum of 1/2" polypropylene. The sump shall have a minimum 3" N.P.T. threaded outlet for a drain plug per NFPA. This shall be used as a

combination clean-out and drain. All tanks shall have an anti-swirl plate located approximately 3" above the inside floor.

The transverse and longitudinal swash partitions shall be manufactured of a minimum of 3/8" polypropylene. All partitions shall be equipped with vent and air holes to permit movement of air and water between compartments. The partitions shall be designed to provide maximum water flow. All swash partitions interlock with one another and are completely fused to each other as well as to the walls of the tank. All partitions and spacing shall comply with NFPA 1901. The walls shall be welded to the floor of the tank providing maximum strength.

Inside the fill tower there shall be a combination vent/overflow pipe. The vent overflow shall be a minimum of schedule 40 polypropylene pipe with an I.D. of 3" or larger that is designed to run through the tank. This outlet shall direct the draining of overflow water past the rear axle, thus reducing the possibility of freeze-up of these components in cold environments. This drain configuration shall also assure that rear axle tire traction shall not be affected when moving forward.

The booster tank shall undergo extensive testing prior to installation in the truck. All water tanks shall be tested and certified as to capacity on a calibrated and certified tilting scale.

Each tank shall be weighed empty and full to provide precise fluid capacity. Each tank shall be delivered with a Certificate of Capacity delineating the weight empty and full and the resultant capacity based on weight. Engineering estimates for capacity calculations shall not be permitted for capacity certification. The tank must be designed and fabricated by a tank manufacturer that is ISO 9001:2008 certified in each of its locations. The ISO certification must be to the current standard in effect at the time of the design and fabrication of the tank.

A tag shall be installed on the apparatus in a convenient location and contain pertinent information including a QR code readable by commercially available smart phones. The information contained on the tag shall include the capacity of the water and foam (s), the maximum fill and pressure rates, the serial number of the tank, the date of manufacture, the tank manufacturer, and contact information. The QR code will allow the user to connect with the tank manufacturer for additional information and assistance.

The tank shall have a limited Lifetime warranty that provides warranty service for the life of the fire apparatus in which the tank is installed. Warranties are transferable if the apparatus ownership changes by requesting the transfer from the tank manufacturer.

The booster tank shall include a rear tank dump mounting plate.

Tank capacity is 3000 US gallons / 2523 Imperial gallons / 11469 Liters.

WATER TANK OPTIONS

Tank Sump Additional [Qty: 2]

A second sump shall be added to the tank bottom for customer's special applications.

Newton Dump Provision [Qty: 3]

Special provisions for mounting a Newton dump valve on the poly water tank shall be provided.

TANK PLUMBING

Tank Fill 2 Elkhart Unibody Valve

One (1) 2" pump-to-tank fill line having a 2" manually operated full flow valve. The valve control shall be located at the pump operator's panel and shall always visually indicate the position of the valve. The fill line shall be controlled using a chrome handle with an integral tag.

The valve shall be an Unibody series with stainless steel ball and dual adjustable neoprene seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the ball when in a throttle position and water is flowing through it.

The valve shall be of the unique Elkhart Drop-out or Swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance, and decreased friction loss.

Tank Dumps

Side tank dumps 1080 or 1085 shall be provided. Located one on each side of the apparatus in between the rear wheels and 1 centered on the rear of the apparatus.

The tank dumps shall be Newton Kwik Dump and shall include a 10" x 10" flip-up valve plate for maximum water flow. Each dump assembly shall have a 5018 extension that shall extend the dump out past the side of the apparatus.

The dump valve and dump extension shall be electrically actuated. The exterior surface of the dump assembly shall be stainless steel.

Tank To Pump 3 Elkhart Unibody Valve

One (1) manually operated 3" Elkhart valve with 4" plumbing shall be installed between the pump suction and the booster tank in order to pump water from the tank. The valve control shall be located at the pump operator's panel and shall visually indicate the position of the valve at all times.

The valve shall be an Elkhart Unibody series with a stainless-steel ball and dual adjustable neoprene seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the acetal ball when in a throttle position and water is flowing through it.

The valve shall be of the unique Elkhart drop-out or swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance, and decreased friction loss.

A check valve shall be provided in the tank to pump supply line to prevent the possibility of "back filling" the water tank. The valve control shall be located at the pump operator`s panel and shall visually indicate the position of the valve at all times.

Rear Direct Tank Fill

Two (2) 3" rear direct water tank fills with check valves shall be provided. The connection shall include an inlet strainer, 3" NST inlet with cap and retainer. Both will have 3" Storz connections. They will both have the capability to hold the weight of charged 3" Supply lines.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

The direct tank fills shall be located one to the driver's side, one to the officer's side rear of the body. Both must be accessible from the ground.

LADDER STORAGE / RACKS

Hold Downs

The ladder brackets/rack to store one (1) 3-section 35' extension and one (1) 16' roof ladder.

Ladder Brand

The ladder brand capable of being carried on the unit shall be Alco-Lite.

Equipment Storage

A recessed equipment storage compartment shall be provided. The storage compartment shall store two (2) pike poles. (1) ten foot and (1) eight foot.

The storage compartment shall be accessed through a hinged 1/8" (.125") aluminum diamond plate door with a push-button latch. The door shall be wired to the door ajar indicator light in the cab and shall be interlocked with the parking brake per NFPA.

The storage compartment shall be located below officer side compartment top below the ladders and above the DOT light assembly on the rear of the apparatus. The door will open in the downward direction. This compartment will be duplicated on the driver's side below the portable tank.

Hard Suction Storage

An aluminum storage tray shall be provided and shall be capable of storing the supplied 6" x 15` hard suction hose.

The storage tray shall include a minimum of four (4) NFPA compliant hose restraints.

- One tray shall be located on the driver side above compartments.
- One tray shall be mounted to the top of the ladder storage track,
- Storage tray and suction hose shall not block any lighting on the high side of the apparatus.

Ladders

The length of ladders capable of being stored shall be the following: 35' 3-section and 16' roof ladder.

Ladder Storage Rack

A Zico QUIC-LIFT Ladder Access System (LAS) ladder rack shall be provided. The rack shall lower the ladders approximately 31" from the stored position to provide a safe and convenient height for unloading and loading.

The rack shall be electrically operated by two (2) durable high cycle 12-volt actuators and controlled by a 30 amp two-pole double-throw momentary switch located at the pump module area. The control switch location shall allow the operator to monitor operations, monitor positioning of apparatus mounted equipment in the ladder racks travel path and ground personnel while lowering and raising the rack.

The ladder rack shall be self-locking in any position during operation. A visual signal shall be provided to indicate when the ladder rack is in motion by two (2) yellow flashing lights installed one (1) on each side of the rack.

The rack shall also be wired through the door ajar indicator light located in the cab to alert the driver that the rack is not stowed if the park brake is released.

The rack will be wired additionally to an indicator light on the center console that shows if it is in the stored or lowered position.

The ladder rack shall be capable of storing a maximum of three hundred pounds (300 lbs.).

The rack shall be located to the officer's side of the body.

Hard Suction Tray

One (1) hard suction storage tray shall be provided and mounted to the top of the Zico drop-down ladder rack. The tray shall provide ground level access to the suction hose with the rack in the lowered position. The hard-suction tray shall be constructed of 1/8" (.125") smooth aluminum plate. The hard- suction hose shall be secured in the tray by Four (4) securing straps evenly spaced.

HANDRAILS / STEPS

Body Handrails

Hansen white LED lighted body handrails shall be provided (includes pump module if applicable). The handrails shall be installed between chrome end stanchions and shall be positioned at least 2" from the mounting surface to allow a positive grip with a gloved hand.

Handrail lighting shall be wired through clearance / headlight switch and only activate when park brake is set.

Hose Bed Folding Steps

Innovative Controls dual lighted LED folding steps shall be positioned to the driver side and officers side rear of the body. The steps shall be NFPA compliant for access to the hose bed storage area and in step height and surface area. The steps shall be staggered stepped as applicable with tailboard depth, not applicable with recessed step mounting.

Innovative Controls dual lighted folding step with LED lights integral to the step on the top to provide NFPA requirements of 2 fc (20 lx) on the stepping surface. Folding step shall also have a LED light integral to the bottom of the step to meet NFPA requirements of a stepping surface up to 18" below the step. The folding step shall sustain a minimum static load of 500 lb with a 3 to 1 safety factor. The folding step shall also meet NFPA slip resistance qualifications. Corrosion resistance shall be demonstrated by a 1000 hr salt spray test with no visible signs of deterioration of the step body or hardware.

One (1) handrail shall be installed (as applicable) in compliance with current NFPA. The handrail shall be constructed of 6063T5 1.25" OD anodized aluminum tube, with an integral ribbed surface to assure a good grip for personnel safety, mounted between chrome stanchions.

Intermediate Rear Step

One (1) intermediate rear step shall be provided above the rear Newton dump.

The intermediate step shall be constructed of 3/16" (.187") aluminum treadplate. The step shall include a multi-directional, aggressive gripping surface incorporated into the treadplate. The surface shall extend vertically from the diamond plate sheet a minimum of 1/8" (.125"). Gripping surfaces shall be circular in design, a minimum of 1" diameter and on centers not to exceed 4".

MISC. BODY OPTIONS

Mud Flaps

Black mud flaps provided for the body wheel wells.

Splash Guard

A one (1) piece splash guard shall be installed under the body full width behind the rear axle. The design and material of the splash guard shall be smooth rubber backing with front polly bristles designed to keep rear of vehicle clean of road spray and debris. The splash guard to be 18"H x 96"L. Rear will have in red Lettering TAN14KER.

Body Mainframe

The body mainframe shall be entirely constructed of aluminum. The complete framework shall be constructed of 6061T6 and 6063T5 aluminum alloy extrusions welded together using 5356 aluminum alloy welding wire.

The body mainframe shall include 3" x 3" 6061-T6 aluminum 3/8" (0.375") wall crossmember extrusion or 3" x 3" I-beam section aluminum extrusion depending on the application at the front of the body. A solid 3" x 3"" I-beam" section aluminum extrusion shall be provided the full width of the body forward and rearward of the rear wheel well. The crossmembers shall be designed to support the compartment framing and shall be welded to 1-3/16" x 3" (1.188" x 3") solid 6063-T5 aluminum frame sill extrusions. The frame sill extrusions shall be shaped to contour with the chassis frame rails and shall be protected from contact with the chassis frame rails by 5/16" x 2" (0.31" x 2") fiber-reinforced rubber strips to prevent wear and galvanic corrosion caused when dissimilar metals come in contact.

Body Mounting System

The main body shall be attached to the chassis frame rails with six (6) of 5/8" (0.625") diameter steel U-bolts. This body mounting system shall be used to allow easy removal of the body for major repair or disassembly.

Water Tank Mounting System

The body design shall allow the booster tank to be completely removable without disturbing or dismounting the apparatus body structure. The water tank shall rest on top of a 3" x 3" frame assembly covered with rubber shock pads and corner braces formed from 3/16" angled plate to support the tank. The booster tank mounting system shall utilize a floating design to reduce stress from road travel and vibration. To maintain low vehicle center of gravity the water tank bottom shall be mounted within 5" of the frame rail top.

Hose Bed Side Assembly

The hose bed side assemblies shall be made of 3" x 3" slotted aluminum extrusion and 3/16" (.188") smooth plate.

The exterior hose bed side surface shall be completely sanded and deburred to assure a smooth finish and painted job color. The interior hose bed side surface shall be completely sanded and deburred to assure a smooth sanded finish.

Hose Bed

The area above the booster tank shall have a hose storage area provided. The hose bed shall be constructed entirely from maintenance-free, 3/4" deep x 7.5" wide, extruded aluminum slats that shall be pop-riveted into a one-piece grid system. Each slat shall have all sharp edges removed and have an anodized ribbed top surface that shall prevent the accumulation of water and allow for ventilation of wet hose.

The hose bed design shall incorporate adjustable tracks in the forward area and the rearward area of the hose bed for the installation of an adjustable divider(s). The adjustable tracks shall hold an adjustable divider(s) mounting nut straight, so only a hex head wrench is required to adjust a divider(s) from side to side (as is practical with other hose bed mounted equipment).

The hose bed shall be easily removable to allow access to the booster tank below.

Hose Bed Dividers

There shall be two hose bed dividers provided the full fore-aft length of the hose bed.

The hose bed dividers shall be constructed of 3/8" smooth aluminum plate with an extruded aluminum base welded to the bottom. The rear end of the divides shall have a 3" radius corner to protect personnel. The divides shall be natural finish aluminum for long-lasting appearance and shall be sanded and de-burred to prevent damage to the hose.

The dividers shall be adjustable from side to side in the hose bed to accommodate varying hose loads.

Hose Bed Dividers Hand Hold

There shall be a hand hole cut-out(s) on the trailing edge of each hose bed divider. The cut-out(s) is specifically sized for use in adjusting of the hose bed divider.

Floor Matting

This unit shall have all applicable compartment floors, shelves and trays covered with a heavy-duty black DRI-DEK matting.

Rub Rail

The pump area module(s) and body shall have rub rails mounted along the sides.

The rub rail shall be C-channel in design and constructed of 3/16" thick 6463T6 anodized aluminum extrusion. The rub rail shall be 2.75" high x 1.25" deep and shall extend beyond the body width to protect compartment doors and the body side. The rub rail depth shall allow marker and/or warning lights to be recessed inside for protection.

The top surface of the rub rail shall have minimum of five (5) raised serrations. Each serration being a minimum of .1" in height and with cross grooves to provide a slip-resistant edge for the tailboard step and pump module running board areas. The rub rail shall be mounted a minimum of 3/16" off the pump module and body with nylon spacers. The ends of each section shall be provided with a finished rounded corner piece.

Anodize Aluminum Trim

A anodize aluminum trim shall be located at the bottom edge of all body compartment openings with painted edge (as applicable). The trim shall provide added protection of the painted surface of the body when equipment is removed from the compartment.

Tank Dump Plates and Doors

The tank dumps shall have diamond plate dump panels. Included shall be lift-up diamond plate doors with spring loaded hinges.

Commercial Tandem Axle Tanker

Commercial chassis tandem axle wheelbase modification. Adds 1" to wheelbase due rear axle offset between commercial and custom chassis.

Body Mod High HP Commercial Engines

Body or pump module shall be notched to accommodate the exhaust canister for high horsepower engines (370 HP or more) on the commercial chassis. The top mount right side

walkway and/or speedlay module lower storage compartment may be modified or eliminated. Side mount or under tank pump bodies may have reduced front right-side lower storage areas.

SCBA BOTTLE STORAGE

SCBA Strap

Straps shall be provided in each exterior storage compartment to provide secondary means to hold each SCBA bottle in the compartment. The straps shall be constructed from 1" nylon webbing formed in a loop. The strap(s) shall be mounted to the storage compartment ceiling directly inside the door opening at each bottle location.

SCBA STORAGE

SCBA storage with hinged door and push button latch shall be provided in the body wheel well area.

The door shall match the wheel well area material and finish.

The door shall be wired to "Door Open" indicator inside cab.

Compartment shall be weather tight.

The storage area shall be capable of holding one complete Scott 4.5 SCBA and one spare Scott 30 min bottle.

Location: driver side rear wheel well offset forward, driver side rear wheel well offset rearward, officer side rear wheel well offset forward, officer side rear wheel well offset rearward

PUMPS

Pump Rating

The fire pump shall be rated at 1500 GPM or greater.

Fire Pump System

The pump shall be a midship-mounted Hale QMAX single stage centrifugal pump. The pump shall be mounted on the chassis frame rails of commercial or custom truck chassis and have the capacity of 1,500 to 2,250 gallons per minute (U.S. GPM) NFPA 1901 rated performance and shall be split shaft driven from the truck transmission.

The entire pump body and related parts shall be of fine grain alloy cast iron, with a minimum tensile strength of 30,000 psi (207 MPa). All metal moving parts in contact with water shall be of high-quality bronze or stainless steel. Pump body shall be horizontally split in two sections, for easy removal of impeller assembly including wear rings and bearings from beneath the pump without disturbing pump mounting or piping.

The pump impeller shall be hard, fine grain bronze of the mixed flow design and shall be individually ground and hand balanced. Impeller clearance rings shall be bronze, easily renewable without replacing impeller or pump volute body, and of wrap-around double labyrinth design for maximum efficiency.

The pump shaft shall be heat-treated, corrosion-resistant stainless steel and shall be rigidly supported by three (3) bearings for minimum deflection. The sleeve bearing is to be lubricated by a force fed, automatic oil lubricated design, pressure-balanced to exclude foreign material. The remaining bearings shall be heavy-duty, deep groove ball bearings in the gearbox and shall be splash-lubricated. Pump shaft must be sealed with double-lip oil seal to keep road dirt and water out of the gearbox.

Two (2) 6" diameter suction ports with 6" NST male threads and removable screens shall be provided, one each side. The ports shall be mounted one (1) on each side of the midship pump and shall extend through the side pump panels. Inlets shall come equipped with long handle chrome caps.

Discharge Manifold

The pump system shall utilize a stainless-steel discharge manifold system that allows a direct flow of water to discharge valves. The manifold and fabricated piping systems shall be constructed of a minimum of Schedule 10 stainless steel to reduce corrosion.

Pump Shift

The pump shift shall be pneumatically controlled using a power shifting cylinder.

The power shift control valve shall be mounted in the cab and be labeled" PUMP SHIFT". The apparatus transmission shift control shall be furnished with a positive lever, preventing accidental shifting of the chassis transmission. This control valve shall be in reach of the driver.

A green indicator light shall be located in the cab and be labeled" PUMP ENGAGED". The light shall not activate until the pump shift has completed its full travel into pump engagement position.

A second green indicator light shall be in the cab and be labeled" OK TO PUMP". This light shall be energized when both the pump shift has been completed and the chassis automatic transmission has obtained converter lock-up (4th gear lock-up). This will also be duplicated on the pump panel.

Test Ports

Two (2) test plugs shall be pump panel mounted for third party testing of vacuum and pressures of the pump.

Gearbox Cooler

A gearbox cooler shall be provided to maintain safe operating temperatures during prolonged pumping operations for pump rating 1500 GPM and over.

PUMP CERTIFICATION

Pump Certification

The pump, when dry, shall be capable of taking suction and discharging water in accordance with current NFPA 1901. The pump shall be tested at the manufacturer's facility by an independent, third-party testing service. The conditions of the pump test shall be as outlined in current NFPA 1901.

The tests shall include, at a minimum, the pump test, the pumping engine overload test, the pressure control system test, the priming device tests, the vacuum test, and the water tank to pump flow test as outlined in current NFPA 1901.

A piping hydrostatic test shall be performed as outlined in current NFPA 1901.

The pump shall deliver the percentage of rated capacities at pressures indicated below:

- 100% of rated capacity at 150 psi net pump pressure
- 100% of rated capacity at 165 psi net pump pressure
- 70% of rated capacity at 200 psi net pump pressure
- 50% of rated capacity at 250 psi net pump pressure

A test plate, installed at the pump panel, shall provide the rated discharges and pressures together with the speed of the engine as determined by the certification test, and the no-load governed speed of the engine.

A Certificate of Inspection certifying performance of the pump and all related components shall be provided at time of delivery. Additional certification documents shall include, but not limited to, Certificate of Hydrostatic Test, Electrical System Performance Test, Manufacturer's Record of Pumper Construction, and Certificate of Pump Performance from the pump manufacturer.

PUMP OPTIONS

Steamers, Flush+1

The pump 6" steamer intake(s) shall be mounted approximately 1" from the pump panel to back of cap when installed. The "Flush+1" dimension can vary + or - 1-1/4" or as practicable depending on the pump module width and options selected.

All electric MIV's.

Location: driver's side, officer's side.

Zinc Anodes

The zinc anodes help prevent damage caused by galvanic corrosion within the fire pump. The system provides a sacrificial metal which helps to diminish or prevent pump and pump shaft galvanic corrosion. One anode will be located on the suction side and one will be located on the discharge side of the pump.

Thermal Relief Valve

A Hale thermal relief valve that protects the pump from overheating shall be provided. The valve shall automatically dump a controlled amount of water to the ground when the pump water exceeds the pre-set temperature of the relief valve.

Inlet Valve

A Hale Master Intake Valve (MIV-E) shall be provided for the specified intake. The large diameter inlet valve shall be capable of achieving an NFPA test rating of 1500 GPM through a single 6" suction hose.

The inlet valve shall be operated by a 12 VDC electric motor with a remote switch provided at the pump operator's position. The 12 VDC motor shall be provided with an automatic resetting, thermally compensated over-current protection circuit breaker to protect the 12 VDC motor and apparatus electrical system. The gear actuator on the valve will cycle from full closed to full open in not less than three (3) seconds. A hand-controlled pump panel mounted manual override (knob style) shall be provided.

An indicator light panel shall be located at the pump operator's position to show valve open, closed, or traversing from open to closed.

A built-in adjustable pressure relief valve shall be provided. The pressure relief valve shall be factory set to 125 psi. The pressure relief valve shall provide overpressure protection for the suction hose even when the intake valve is closed.

A 3/4" air bleeder valve shall be provided and controlled at the pump operator`s position.

A 1/4" water bleeder shall be supplied and controlled at the pump operator`s position.

Location: driver side pump panel, officer side pump panel.

Mechanical Pump Seal

The midship pump shall be equipped with a high quality, spring loaded, self-adjusting mechanical seal capable of providing a positive seal to atmosphere under all pumping conditions. This positive seal to atmosphere must be achievable under vacuum conditions up to 26 Hg (draft) or positive suction pressures up to 250 psi.

The mechanical seal assembly shall be 2 inches in diameter and consist of a carbon sealing ring, stainless steel coil spring, Viton rubber boot, and a tungsten carbide seat, with a Teflon back-up seal provided.

Only one mechanical seal shall be required, located on the first stage suction (inboard) side of the pump and be designed to be compatible with a one-piece pump shaft (no exceptions). A continuous cooling flow of water from the pump shall be directed through the seal chamber when the pump is in operation.

Hale Pressure Relief Valve

A Hale pressure relief valve shall be provided and mounted on the pump operator`s panel. The pump shall be equipped with an automatic pressure control device. A single bronze variable pressure setting relief valve shall be provided and be of ample capacity to prevent an undue pressure rise as outlined in NFPA 1901. The relief valve shall be normally closed and shall open against pump pressure. A relief valve control wheel with a control light to signal when open shall be mounted on the pump operator`s panel.

Master Drain Valve

A manual master drain valve shall be installed on the pump panel. The master pump drain assembly shall consist of a Class 1 bronze master drain with a rubber disc seal. The master drain shall have a rubber seal to prevent water from running out on the running board.
The manual master drain valve shall have twelve (12) individual-sealed ports that allow quick and simultaneous draining of multiple intake and discharge lines. It shall be constructed of corrosion-resistant material and be capable of operating at a pressure of up to 600 PSI.

The master drain shall provide independent ports for low point drainage of the fire pump and auxiliary devices.

Trident Primer

A Trident air operated priming system shall be installed. The unit shall be of all brass and stainless-steel construction and designed for fire pumps of 1,500 GPM or more. Due to corrosion exposure no aluminum or vanes shall be used in the primer design. The primer shall be three-barrel design with ¾" NPT connection to the fire pump.

The primer shall be mounted above the pump impeller so that the priming line will automatically drain back to the pump. The primer shall also automatically drain when the panel control actuator is not in operation. The inlet side of the primer shall include a brass "wye" type strainer with removable stainless-steel fine mesh strainer to prevent entry of debris into the primer body.

The system shall create vacuum by using air from the chassis auxiliary air tank through a two-barrel multi-stage internal "venturi nozzles" within the primer body. The noise level during operation of the primer shall not exceed 75 Db.

Air Flow Requirements

The primer shall require a minimum of 15.6 cubic foot per minute air compressor and shall be capable of meeting drafting requirements at high idle engine speed. The air supply shall be from a chassis supplied "protected" air storage tank with a pressure protection valve. The air supply line shall have a pressure protection valve set between 70 to 80 PSIG.

Primer Control

The primer control shall have a 3 position switch labeled , Auto Prime, OFF and PRIME. The valve shall direct air pressure from the air brake storage tank to the primer body. To prevent freezing, no water shall flow to and from the panel control on the driver's side.

Warranty

The primer shall be covered by a five (5) year parts warranty.

INTAKES

Left Intake 2.5 Elkhart Unibody Valve

One (1) 2 1/2" suction inlet with a manually operated 2 1/2" Elkhart Unibody valve with chrome valve face shall be provided on the left side of the apparatus at the pump panel.

The valve shall be an Elkhart Unibody series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless-steel ball when in a throttle position and water is flowing through it.

The valve shall be of the unique Elkhart Swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

The outlet of the valve shall be connected to the suction side of the pump with the valve body located behind the pump panel. The valve shall come equipped with a brass inlet strainer, 2 1/2" NST female chrome inlet swivel and shall be equipped with a chrome-plated, rocker-lug plug with a retainer device.

The valve control shall be located at the pump operator's panel and shall always visually indicate the position of the valve.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance, and decreased friction loss.

A 3/4" bleeder valve assembly will be installed on the left side pump panel.

DISCHARGES AND PRECONNECTS

Deck Gun Discharge 3 Electric Unibody Valve

One (1) 3" deck gun discharge outlet with an electrically-operated Elkhart valve and 3" stainless steel pipe shall be provided above the pump compartment.

The valve shall be an Elkhart unibody series with a stainless-steel ball and dual UHMWPE seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the acetal ball when in a throttle position with water flowing through it.

The valve shall be of the unique Elkhart Drop-out or Swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

The unibody series valve shall have the following features:

- 12-volt DC motor
- A toggle switch and indicator lamp assembly mounted on the pump operator's panel
- 10 LED indicator lights
- Manual override valve actuation

The system shall include a valve-controller and valve actuator.

The valve shall be equipped with a device that limits the opening and closing speeds to comply with the current edition of NFPA1901.

The valve control shall be located at the pump operator panel and shall always visually indicate the position of the valve.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

Cross Lay 1.5 Elkhart Manual Unibody [Qty: 2]

One (1) cross lay discharge shall be provided at the front area of the body. The cross lay shall include one (1) 2" brass swivel with a 1-1/2" hose connection to permit the use of hose from either side of the apparatus.

The cross lay hose bed shall consist of a 2" heavy duty hose coming from the pump discharge manifold to the 2" swivel. The hose shall be connected to a manual operated 2" Elkhart valve. The valve shall be an Elkhart Unibody series with a stainless-steel ball, and dual UHMWPE seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless ball when in a throttle position and water is flowing through it.

The valve shall be of the unique Elkhart drop-out or swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

The Unibody series valve shall have the following features:

- The system shall include a valve-controller and valve actuator.
- The valve control shall be located at the pump operator's panel and shall always visually indicate the position of the valve.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance, and decreased friction loss.

Left Panel 2.5 Elkhart Unibody Valve

One (1) 2-1/2" discharge outlet with a manually operated Elkhart valve shall be provided at the left-hand side pump panel.

The valve shall be an Elkhart Unibody series with a stainless-steel ball and dual adjustable neoprene seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the acetal ball when in a throttle position and water is flowing through it.

The valve shall be of the unique Elkhart Drop-out or Swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

The valve control shall be located at the pump operator panel and shall always visually indicate the position of the valve.

The discharge shall extend out beyond the pump panel with a cast brass with 2-1/2" NST . Shall be equipped with a chrome-plated rocker-lug cap with a retainer chain.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

Location: left side discharge 1, left side discharge 2

Right Panel Elkhart Unibody Valves

One (1) 3" discharge outlet and one (1) 2.5" discharge outlet with a manually operated Elkhart valve shall be provided at the left-hand side pump panel.

The valve shall be an Elkhart Unibody series with a stainless-steel ball and dual adjustable neoprene seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the acetal ball when in a throttle position and water is flowing through it.

The valve shall be of the unique Elkhart Drop-out or Swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

The valve control shall be located at the pump operator panel and shall always visually indicate the position of the valve.

The discharge shall extend out beyond the pump panel with a cast brass 2-1/2" NST threads.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

Location: right side discharges

Hose Bed 2.5 Elkhart Unibody Valve

One (1) 2.5" discharge shall be provided at the front area of the driver's side hose bed. The hose bed connection shall include one (1) 2.5" hose connection.

The hose bed shall consist of a 2.5" heavy duty hose coming from the pump discharge manifold The hose shall be connected to a manually operated 2.5" Elkhart valve. The valve shall be an Elkhart Unibody series with a stainless-steel ball, and dual UHMWPE seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless ball when in a throttle position and water is flowing through it.

The valve shall be of the unique Elkhart Drop-out or Swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

The Unibody series valve shall have the following features:

- The system shall include a valve-controller and valve
- The valve control shall be located at the pump operator's panel and shall always visually indicate the position of the valve.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance, and decreased friction loss.

Blitz Fire Rear Discharge

One (1) discharge with 3" piping to a 2.5" coupling will be installed on the driver's side rear of the apparatus.

The Blitz Fire Master Stream will be mounted on the rear for easy access.

Decontamination Discharge

A .75" decontamination discharge outlet shall be provided on the driver side pump panel. The outlet shall include a 1/4 turn valve, hose bib connection and pressure reducing valve.

Deck Gun Location

Deck gun piping shall be positioned centered in deck gun channel. This location shall allow for optimal operation of a deck gun monitor once installed.

Booster Reel Discharge

A 1-inch discharge outlet shall be provided to the dunnage area for connection to a hose bed reel on the driver's side of the apparatus. The Valve shall be manually operated.

DISCHARGE OPTIONS

Elkhart 8598 Extender

Elkhart model 8598 3" electrically actuated extender shall be installed. The waterway shall be capable of being lowered to deck level (or into a monitor well) for storage and transportation and shall be capable of being raised to an extended height of 18" using panel mounted controls. These controls shall be capable of moving the waterway in either the raised or lowered position while maintaining the ability to horizontally rotate the monitor device 360 degrees. There shall be an accessible manual override control for use in the event power failure occurs. A power cable shall be supplied for connection from the panel control box to the extender.

A sensor shall be located on the waterway that signals a 12-volt indicator light installed in the cab to illuminate to indicate that the monitor is raised. Labeled as such.

The extender shall have a 3" waterway and a connection for an Elkhart remote controlled monitor.

Monitor Elkhart Cobra

An Elkhart Cobra RF with panel mounted control and handheld control and an adapter to mount to deck gun discharge or extender shall be provided with a 3" inlet. The monitor shall be capable of remote controlled 360 degree left/right travel (in deck mount mode), programmable automatic oscillating from 2 to 360 degree (in deck mount mode) and programmable stow feature. The monitor shall include a SM-1250E nozzle.
The charging base shall be mounted in L1 on forward wall.

The Remote control shall Also be able to open the deck gun valve and extend and lower the 8598 extender.

Hannay Hose Reel

A Hannay Electric rewind hose reel capable of holding between 150' and 200' of 1" rubber booster hose. The reel shall be mounted on the driver's side of the apparatus in the dunnage area on top of the pump. The reel shall be made from aluminum and be operated by a 12v electric motor. Where the hose leaves the side of the pump panel shall be protected by rollers as to protect pump area. A waterproof push button shall be installed on the pump panel to operate the rewind function of the reel.

IC Push/Pull Control

The apparatus pump panel shall be equipped with Innovative Controls Side Mount Valve Controls. The ergonomically designed ¼ turn push-pull T-handle shall be chrome-plated zinc with recessed labels for color-coding and verbiage. An anodized aluminum control rod and housing shall, together with a stainless spring steel locking mechanism, eliminate valve drift. Teflon impregnated bronze bushings in both ends of the rod housing shall minimize rod deflection, never need lubrication, and ensure consistent long-term operation. The control assembly shall include a decorative chrome-plated zinc panel-mounting bezel with areas for color-coding and/or FOAM and CAFS identification labels.

Bleeder Drain Valve [Qty: 8]

The bleeder/drain valves shall be Innovative Controls ¾" ball brass drain valves with chrome-plated lift lever handles and ergonomic grips. Each lift handle grip shall feature built-in color-coding labels and a verbiage tag identifying each valve, also supplied by Innovative Controls. The color labels shall also include valve open and close verbiage.

Discharge/Intake Bezel

Innovative Controls intake and/or discharge swing handle bezels shall be installed to the apparatus with mounting bolts. These bezel assemblies will be used to identify intake and/or discharge ports with color and verbiage. These bezels are designed and manufactured to withstand the specified apparatus service environment and shall be backed by a warranty equal to that of the exterior paint and finish. The specified assemblies feature a chrome-plated panel-mount bezel with durable UV resistant polycarbonate inserts. These UV resistant polycarbonate graphic inserts shall be sub-surface screen printed to eliminate the possibility of wear and protect the inks from fading. All insert labels shall be backed with 3M permanent adhesive (200MP), which meets UL969 and NFPA standards.

Pressure Governor and Engine Throttle

FRC InControl TGA401-D00

Fire Research InControl series TGA401-D00 pressure governor and monitoring display kit shall be installed. The kit shall include a control module, intake pressure sensor, discharge pressure sensor, and cables. The control module case shall be waterproof and have dimensions not to exceed 5 1/2" high by 10 1/2" wide by 2" deep. The control knob shall be 2" in diameter with no mechanical stops, have a serrated grip, and a red idle push button in the center. It shall not extend more than 1 3/4" from the front of the control module. Inputs for monitored information shall be from a J1939 databus or independent sensors. Outputs for engine control shall be on the J1939 databus or engine specific wiring.

The following continuous displays shall be provided:

- Pump discharge; shown with four daylight bright LED digits more than 1/2" high
- Pump Intake; shown with four daylight bright LED digits more than 1/2" high
- Pump discharge and intake pressure gauge shall have an accuracy of ±3 percent over the full scale.
- Pressure / RPM setting; shown on a dot matrix message display
- Pressure and RPM operating mode LEDs
- Throttle ready LED
- Engine RPM; shown with four daylight bright LED digits more than 1/2" high
- Check engine and stop engine warning LEDs
- Oil pressure; shown on a dual color (green/red) LED bar graph display
- Engine coolant temperature; shown on a dual color (green/red) LED bar graph display
- Transmission Temperature: shown on a dual color (green/red) LED bar graph display
- Battery voltage; shown on a dual color (green/red) LED bar graph display.

The dot-matrix message display shall show diagnostic and warning messages as they occur. It shall show monitored apparatus information, stored data, and program options when selected by the operator. All LED intensity shall be automatically adjusted for day and nighttime operation.

The program shall store the accumulated operating hours for the pump and engine to be displayed with the push of a button. It shall monitor inputs and support audible and visual warning alarms for the following conditions:

- High Battery Voltage
- Low Battery Voltage (Engine Off)
- Low Battery Voltage (Engine Running)
- High Transmission Temperature
- Low Engine Oil Pressure
- High Engine Coolant Temperature
- Out of Water (visual alarm only)
- No Engine Response (visual alarm only).

The program features shall be accessed via push buttons and a control knob located on the front of the control panel. There shall be a USB port located at the rear of the control module to upload future firmware enhancements.

Inputs to the control panel from the pump discharge and intake pressure sensors shall be electrical. The discharge pressure display shall show pressures from 0 to 600 psi. The intake pressure display shall show pressures from -30 in. Hg to 600 psi.

The governor shall operate in two control modes, pressure and RPM. No discharge pressure or engine RPM variation shall occur when switching between modes. A throttle ready LED shall light when the interlock signal is recognized. The governor shall start in pressure mode and set the engine RPM to idle. In pressure mode the governor shall automatically regulate the discharge pressure at the level set by the operator. In RPM mode the governor shall maintain the engine RPM at the level set by the operator except in the event of a discharge pressure increase. The governor shall limit a discharge pressure increase in RPM mode to a maximum of 30 psi. Other safety features shall include recognition of no water conditions with an automatic programmed response and a push button to return the engine to idle.

The pressure governor, monitoring and master pressure display shall be programmed to interface with a Cummins engine.

Location of the governor and monitoring display shall be: Pump operator`s panel.

GAUGES

FUEL LEVEL GUAGE

One diesel fuel gauge will be mounted on the pump panel.

GAUGE IC 10 LED TANK LEVEL WATER, ADDITIONAL

An additional Innovative Controls brand water tank level gauge shall be located at the officer rear to provide a high-visibility display of the water tank water level. Ten (10) high-intensity light emitting diodes (LED`s) on the display module shall have a 3-dimensional lens allowing the full, 3/4, 1/2, 1/4, and refill levels to be easily distinguished at a glance within full 180-degree visibility.

The display module shall be protected from vibration and contamination with the components being encased in an encapsulated plastic housing. The long life and extreme durability of LED indicators eliminates light bulb replacement and maintenance. Color coded cover plates shall complete the assembly of the display module to the pump panel. Each display level can be set independently for maximum reliability.

The display shall provide a steady indication of fluid level despite sloshing inside of the tank when the vehicle is in motion due to an" anti-slosh" feature.

GAUGE IC 10 LED TANK LEVEL WATER MINI

Innovative Controls miniature tank indicator shall be installed in the cab dash. The indicator shall show the volume of water in the tank on five (5) easy to see super bright LED`s with auto dimming feature. The miniature indicator shall receive input information over a single wire from a tank primary indicator.

WHELEN STRIP LIGHT PLUS XL SUPER LED TANK LIGHT

One (1) Innovative Controls brand water tank level gauge shall be located at the pump operator`s panel to provide a high-visibility display of the water tank water level. Ten (10) high-intensity light emitting diodes (LEDs) on the display module shall have a 3-dimensional lens allowing the full, 3/4, 1/2, 1/4, and refill levels to be easily distinguished at a glance full 180-degree visibility.

The display module shall be protected from vibration and contamination with the components being encased in an encapsulated plastic housing. The long life and extreme durability of LED indicators eliminates light bulb replacement and maintenance. Color coded cover plates shall complete the assembly of the display module to the pump panel. Each display level can be set independently for maximum reliability.

The display shall provide a steady indication of fluid level despite sloshing inside of the tank when the vehicle is in motion due to an "anti-slosh" feature.

In addition to the pump panel mounted lights there shall be Whelen strip light plus XL super LED tank level gauges. The system shall be controlled by an Innovative Controls tank level driver module that is integral of the NFPA required pump panel mounted tank level light assembly.

The remote light heads shall be arranged as follows.

Full Green
3/4 Blue
1/2 Amber
1/4 Red

Location of Whelen tank level lights: each side of cab up high and the rear below the arrow stick.

2.55" Discharge Pressure Gauge (Dual Read) [Qty: 9]

The valve discharge gauges shall be 2 ½"(63mm) diameter Innovative Controls pressure gauges. Each gauge shall have a rugged corrosion free stainless-steel case and clear scratch resistant molded crystals with captive O-ring seals to ensure distortion free viewing and seal the gauge. The gauges shall be filled with a synthetic mixture to dampen shock and vibration, lubricate the internal mechanisms, prevent lens condensation, and ensure proper operation from –40F to +160F. Each gauge shall exceed ANSI B40.1 Grade A requirements with an accuracy of +/- 1.5% full scale and include a size appropriate phosphorous bronze bourdon tube with a reinforced lap joint and large tube base to increase the tube life and gauge accuracy.

A polished chrome-plated stainless-steel bezel shall be provided to prevent corrosion and protect the lens and gauge case. The gauges shall be installed into decorative chrome-plated mounting bezels that incorporate valve-identifying verbiage and/or color labels. The gauges shall display a range from 0-2750KPA/0-400PSI with black graphics on a white background.

MASTER INTAKE GAUGE

One 6" innovative controls gauge shall be located on the pump panel; the gauge shall read –30-400 PSI and represent the apparatus intake pressure. The gauge shall be placed at a 20 degree downward angle.

MASTER DISCHARGE GAUGE

One 6" innovative controls gauge shall be located on the pump panel. This gauge shall read 0-400 psi and represent the master discharge pressure of the apparatus. The gauge shall be placed at a 20 degree downward angle.

ELECTRICAL SYSTEMS

Multiplex Electrical System

The apparatus shall incorporate a Weldon V-MUX multiplex 12-volt electrical system. The system shall have the capability of delivering multiple signals via a CAN bus. The electrical system installed by the apparatus manufacturer shall conform to current SAE standards, the latest FMVSS standards, and the requirements of the applicable NFPA 1901 standards.

The electrical system shall be pre-wired for optional computer modem accessibility to allow service personnel to easily plug in a modem to allow remote diagnostics.

The electrical circuits shall be provided with low voltage over-current protective devices. Such devices shall be accessible and located in required terminal connection locations or weather-resistant enclosures. The over-current protection shall be suitable for electrical equipment and shall be automatic reset type and meet SAE standards. All electrical equipment, switches, relays, terminals, and connectors shall have a direct current rating of 125 percent of maximum current for which the circuit is protected. The system shall have electro-magnetic interference suppression provided as required in applicable SAE standards.

Any electrical junction or terminal boxes shall be weather-resistant and located away from water spray conditions.

For superior system integrity, the networked multiplex system shall meet the following minimum component requirements:

- The network system must be Peer to Peer technology based on RS485 protocol. No one module shall hold the programming for other modules. One or two modules on a network referred to as Peer to Peer, while the rest of the network consists of a one master and several slaves is not considered Peer to Peer for this application.
- Modules shall be IP67 rated to handle the extreme operating environment found in the fire service industry.
- All modules shall be solid state circuitry utilizing MOS-FET technology and utilize Deutsch series input/output connectors.
- Each module that controls a device shall hold its own configuration program.
- Each module should be able to function as a standalone module. No "add-on" module will be acceptable to achieve this form of operation.
- Load shedding power management (8 levels).
- Switch input capability for chassis functions.
- Responsible for lighting device activation.
- Self-contained diagnostic indicators.
- Wire harness needed to interface electrical devices with multiplex modules.
- The grounds from each device should return to main ground trunk in each sub harness using ultrasonic splices.

Wiring

All harnessing, wiring and connectors shall be manufactured to the following standards/guidelines. No exceptions.

- NFPA 1901-Standard for Automotive Fire Apparatus
- SAE J1127 and J1127
- IPC/WHMA-A-620 – Requirements and Acceptance for Cable and Wire Harness Assemblies. (Class 3 – High Performance Electronic Products)

All wiring shall be copper, or copper alloys of a gauge rated to carry 125 of the maximum current for which the circuit is protected. Insulated wire and cable 8 gauge and smaller shall be SXL, GXL, or TXL per SAE J1128. Conductors 6 gauge and larger shall be SXL or SGT per SAE J1127.

All wiring shall be colored coded and imprinted with the circuits function. Minimum height of imprinted characters shall not be less than .082" plus or minus .01". The imprinted characters shall repeat at a distance not greater than 3".

A coil of wire shall be provided behind electrical appliances to allow them to be pulled away from mounting area for inspection and service work.

Wiring Protection

The overall covering of the conductors shall be loom or braid.

Braid style wiring covers shall be constructed using a woven PVC-coated nylon multifilament braiding yarn. The yarn shall have a diameter of no less than .04" and a tensile strength of 22 lbs. The yarn shall have a service temperature rating of -65 F to 194 F. The braid shall consist of 24 strands of yarn with 21 black and 3 yellow. The yellow shall be oriented the same and be next to each other.

Wiring loom shall be flame retardant black nylon. The loom shall have a service temperature of -40 F to 300 F and be secured to the wire bundle with adhesive-backed vinyl tape.

Wiring Connectors

All connectors shall be Deutsch series unless a different series of connector is needed to mate to a supplier's component. The connectors and terminals shall be assembled per the connector/terminal manufacturer's specification. Crimble/Solderless terminals shall be acceptable. Heat shrink style shall be utilized.

NFPA Required Testing of Electrical System

The apparatus shall be electrical tested upon completion of the vehicle and prior to delivery. The electrical testing, certifications, and test results shall be submitted with delivery documentation per requirements of NFPA 1901. The following minimum testing shall be completed by the apparatus manufacturer:

1. **Reserve capacity test:**

The engine shall be started and kept running until the engine and engine compartment temperatures are stabilized at normal operating temperatures and the battery system is fully charged. The engine shall be shut off and the minimum continuous electrical load shall be activated for ten (10) minutes. All electrical loads shall be turned off prior to attempting to restart

the engine. The battery system shall then be capable of restarting the engine. Failure to restart the engine shall be considered a test fail.

2. Alternator performance test at idle:

The minimum continuous electrical load shall be activated with the engine running at idle speed. The engine temperature shall be stabilized at normal operating temperature. The battery system shall be tested to detect the presence of battery discharge current. The detection of battery discharge current shall be considered a test failure.

3. Alternator performance test at full load:

The total continuous electrical load shall be activated with the engine running up to the engine manufacturer's governed speed. The test duration shall be a minimum of two (2) hours. Activation of the load management system shall be permitted during this test. However, an alarm sounded by excessive battery discharge, as detected by the system required in NFPA 1901 Standard, or a system voltage of less than 11.7 volts DC for a 12-volt nominal system, for more than 120 seconds, shall be considered a test failure.

4. Low voltage alarm test:

Following the completion of the above tests, the engine shall be shut off. The total continuous electrical load shall be activated and shall continue to be applied until the excessive battery discharge alarm activates. The battery voltage shall be measured at the battery terminals. With the load still applied, a reading of less than 11.7 volts DC for a 12-volt nominal system shall be considered a test failure. The battery system shall then be able to restart the engine. Failure to restart the engine shall be considered a test failure NFPA Required Documentation

The following documentation shall be provided on delivery of the apparatus:

- Documentation of the electrical system performance tests required above.
- A written load analysis, including:

a. The nameplate rating of the alternator.
b. The alternator rating under the conditions.
c. Each specified component load.
d. Individual intermittent loads.

Multiplex Display

The V-MUX multiplex electrical system shall include a Vista IV touch screen color display.

The display shall have the following features:

- Aspect ratio of 16:9 (Wide Screen)
- Diagonal measurement of no less than 7"
- Touch screen design with "virtual" switch capability

- Master warning switch
- Engine high idle switch
- Five (5) tactile switches to access secondary menus
- Eight (8) multi-function programmable tactile switches
- Specific door ajar indication
- Real time clock
- Provides access to the multiplex system diagnostics
- Video capability for optional back-up camera(s) and GPS display

The location of the display shall be determined by the fire company after seeing the cab.

Vehicle Data Recorder

A vehicle data recorder system shall be provided to comply with NFPA 1901, 2009 edition. The following data shall be monitored:

- Vehicle speed MPH
- Acceleration (from speedometer) MPH/Sec.
- Deceleration (from speedometer) MPH/Sec.
- Engine speed RPM
- Engine throttle position % of full throttle
- ABS Event On/Off
- Seat occupied status Occupied Yes/No by position
- Seat belt status Buckled Yes/No by position
- Master Optical Warning Device Switch On/Off
- Time: 24-hour time
- Date: Year/Month/Day

Occupant Detection System

There shall be a visual and audible warning system installed in the cab that indicates the occupant buckle status of all cab seating positions that are designed to be occupied during vehicle movement.

The audible warning shall activate when the vehicle's park brake is released, and a seat position is not in a valid state. A valid state is defined as a seat that is unoccupied and the seat belt is unbuckled, or one that has the seat belt buckled after the seat has been occupied.

The visual warning shall consist of a graphical representation of each cab seat in the multiplex display screen that will continuously indicate the validity of each seat position.

The system shall include a seat sensor and safety belt latch switch for each cab seating position, audible alarm and wiring harness.

Electrical Connection Protection

The vehicle electrical system shall be made more robust by the application of a corrosion inhibiting spray coating on all exposed electrical connections on the chassis and body. If equipped with an aerial device, the exposed connections on the aerial components shall also be protected.

The coating shall use nanotechnology to penetrate at the molecular level into uneven surfaces to create a protective water repellant film. The coating shall protect electrical connections against the environmental condition's apparatus are commonly exposed to.

LIGHT BARS

Light Bar Mounts

One (1) fabricated high light bar mounts for use with Whelen Pioneer front brow light mounted center of the cab above the windshield.

Front Light Bar Color(s)

The front light bar shall be provided with the following color LED modules: Red/White with clear lenses

If applicable, includes side facing light bars when colors are the same.

Light Bar LED Filters

The Whelen Freedom IV light bar(s) shall be provided with filters for all colored LEDs'. The filters shall cover each individual LED module.

Light Bar

A Whelen Freedom IV Series 60" LED light bar model F4X0 with eight (8) LED modules shall be provided; two (2) front corner mounted LED modules, four (4) forward facing LED modules and two (2) side facing LED modules (with front vista windows) or two (2) rear corner LED modules (without front vista windows).

No rear facing LEDs.

The light bars shall have clear lenses.

The white LEDs (if equipped) shall be switched off in blocking right of way mode.

The light bar shall be installed centered on the front cab roof.

WARNING LIGHT PACKAGES

Lower-Level Warning Light Package

Eight (8) Whelen M6RC Super red LED with clear lens light heads shall be provided.

The rectangular lights shall include chrome flanges where applicable. The lights shall be wired with weatherproof connectors and shall be mounted as close to the corner points of the apparatus as is practical as follows:

- Four (4) on the front of the apparatus facing forward
- Two (2) on the rear of the apparatus facing rearward
- One (1) light each side at the rearward most point (as practical).

All warning devices shall be surface mounted in compliance with NFPA standards.

Lower-Level Warning Lights Cont.

Four (4) Whelen V-Series Combination 180-degree warning and perimeter light shall be installed on the apparatus. The M4V2R shall feature a red warning light that will be integrated with other lower-level warning lights. The rectangular lights shall include chrome flanges where applicable. The lights shall be wired with weatherproof connectors and shall be mounted as follows:

One (1) either side of the apparatus front bumper. The "scene" Function of the light shall activate when the turn signal is activated. Four-way flashers will not activate scene light.

One (1) Either side of the apparatus directly to the rear of the side tank dumps. The "scene" function of the light shall activate two ways:

1. When side turn signal is activated, Four way flashers will not activate lights.
2. A switch in the cab shall be provided to activate each light individually for better visibility of side dumps during night operations. Switch will be labeled.

WARNING LIGHTS

Whelen LED Warning Light Flasher

Three (3) Whelen model UFM8 warning light flashers shall be provided to control warning lights. One (1) flasher shall be located in the cab and two (2) located in the body. Each flasher shall have seventeen (17) selectable patterns with eight (8) outputs.

Upper Rear Warning Lights

Two (2) Whelen model L31H Super LED beacons with Red LED with Clear lens domes shall be supplied.

The lights shall be located rear upper body on aerial style brackets to meet Zone C upper requirements.

Hazard (Door Ajar) Light

There shall be a 2" red LED hazard light installed as specified. The light shall be located on the Interior of the cab roof.

Warning Lights

Two (2) Whelen M9RC Series Linear Super LED red light heads with clear lens shall be provided with diamond plate boxes. The rectangular lights shall include chrome flanges where applicable.

Location: (1) each side of body on forward upper body corners, (1) each side of body on rearward upper body corners.

RUBRAIL WARNING LIGHTS

Six (6) red LED emergency lights installed in the rub rail next to the DOT lights. Two (2) Officers side two (2) Drivers side and two (2) in the rear. Lights shall be Whelen.

Directional Traffic Warning Light

One (1) Whelen TAM65 LED 36" long Traffic Advisor with amber lenses shall be provided.

The directional bar shall include a TACTL5 control head. The control head shall include a remote flash control and end lamp enable/disable feature.

The light shall be installed at rear of body to direct traffic around the apparatus.

Recessed Directional Light Bar Mount

An area at the rear of the body shall be provided for recess mounting of a directional light bar. The recess shall reduce the opening height of the rear compartment(s) (if applicable).

Directional Light Bar Control Location

The directional light bar control head shall be in the center console.

SIRENS

Electronic Siren

A Whelen 295SLSA1 electronic siren shall be installed in the cab. The siren amplifier and control panel module shall include a rotary selector for six (6) functions, on/off switch, push button switch for manual siren or air horn tones, and noise canceling microphone.

Mechanical Siren

A chrome plated flush mounted Federal Q2B-NN coaster siren shall be installed in the front bumper. An electric siren brake switch shall be in the cab accessible to driver.

The siren shall be in the front bumper to the officer's side.

Operation of the siren will be by a foot pedal mounted vertically next to the air horn pedal on the driver's side. In addition to a vertically mounted foot pedal on the officer's side. The siren brake switch will be mounted on the center console.

Electronic Siren Control Location

The electronic siren control shall be located in the center console.

SPEAKERS

Siren Speaker

One (1) Whelen model SP123BMC, 100-watt speaker with chrome grill shall be recessed in the front bumper.

The speaker shall produce a minimum sound output of 120 dB at 10 feet to meet current NFPA 1901 requirements.

The speaker shall be located officer side front bumper.

D.O.T. LIGHTING

License Plate Light

One (1) Truck-Lite model 15905 white LED license plate light mounted in a Truck-Lite model 15732 chrome plated plastic license plate housing shall be mounted at the rear of the body.

Body Marker Lights

Trucklite LED clearance lights shall be installed as specified.

Upper Body:

One (1) red LED clearance light each side, rear of body to the side.

Lower Body:

Three (3) red LED clearance lights centered at rear, recessed in the rub rail.

One (1) red LED clearance light each side at the trailing edge on either side of the apparatus body, recessed in the rub rail.

One (1) amber LED clearance / auxiliary turn light each side front of body, recessed in the rub rail.

A rectangular shaped marker light with a red colored lens shall be installed at the trailing edge on each side of the apparatus body/module, recessed in the rub rail.

Marker Lights

One (1) pair of Britax model L427.203L.12V LED amber/red marker rubber housed lights shall be provided. The lights shall be located on the rear body corners mounted in the down angle position. The red lenses shall illuminate to the rear of the apparatus and the amber shall illuminate to the front of the apparatus. The lights shall be wired to the marker light circuit.

Taillights

Three (3) Whelen model M6 series LED (Light Emitting Diode) lights shall be installed in a four (4) light vertical housing each side at rear and wired with weatherproof connectors.

Light functions shall be as follows:

- LED red running light with red brake light in upper position.
- LED amber populated arrow pattern turn signal in middle position.
- LED clear back-up light in lower position.

A one-piece chrome plastic housing shall be mounted around the three (3) individual lights in a vertical position. The lower space will be used by the M6 or equivalent lower NFPA warning light.

LED Head Lights

LED head lights shall be installed.

LIGHTS - COMPARTMENT, STEP & GROUND

Compartment Light Package

One (1) ROM V4 compartment light strip shall be mounted in each body compartment greater than 4 cu. ft. Transverse compartments shall have two (2) lights, located one (1) each side.

Each light bar shall include super bright white LEDs mounted to circuit boards that have acrylic conformal coating for corrosion protection. The LED circuit boards shall be mounted to an extruded aluminum base with lexan lens. The lights shall produce 250 lumens per foot and be waterproof up to 1 meter (3.3 feet).

Compartment lights shall be wired to a master on/off rocker switch on the cab switch panel.

The wiring connection for the compartment lights shall be made with a weather-resistant plug in style connector. A single water and corrosion-resistant switch with a polycarbonate actuator and sealed contacts shall control each compartment light. The switch shall allow the light to illuminate if the compartment door is open.

Ground Lights

The apparatus shall be equipped with a sufficient quantity of lights to properly illuminate the ground areas around the apparatus in accordance with current NFPA requirements. The lights shall be TecNiq model T440 4" circular LED (Light Emitting Diode) with clear lenses mounted in a resilient shock absorbent mount for improved bulb life. The wiring connections shall be made with a weather resistant plug in style connector.

Ground area lights shall be switched from the cab dash with the work light switch.

One (1) ground light shall be supplied under each side of the front bumper extension if equipped.

Lights in areas under the driver and crew area exits shall be activated automatically when the exit doors are opened.

LIGHTS - DECK AND SCENE

Rear Work Lights

Two (2) FireTech LED lights model FT-WL3500-FT-W shall be installed. The lights shall produce 1,981 effective lumens and have a white housing. The lights shall be switched with a labeled work light switch in the cab.

Location: rear body/beavertail area on the trailing edge up high.

Hose Bed Lighting

LED rope lighting will be installed around the inside railing of the hose bed.

Cross Lay Light

A FireTech LED light model WL2000 shall be installed at the rear area of the cross lay to provide cross lay lighting per current NFPA 1901. The cross lay light shall be switched with work light switch in the cab.

LIGHTS - NON-WARNING

Engine Compartment Light

There shall be lighting provided in compliance with NFPA to illuminate the engine compartment area. The light wiring circuit shall activate when the cab is tilted, and master power is switched on.

Pump Compartment LED Light

An LED light shall be provided in the pump compartment area for NFPA compliance. The light shall be wired to operate with the work light switch in the cab.

LED Pump Panel Light Package

Three (3) TecNiq model E10 LED lights shall be mounted under a light shield directly above each side pump panel. The work light switch in the cab shall activate the lights when the park brake is set.

LED Pump Panel Light - Additional

One (1) TecNiq model E10 LED light shall be mounted under the light shield, in addition to the existing pump panel lights. The additional light shall be located at the officer side pump panel.

CONTROLS / SWITCHES

A 12-volt switch shall be provided.

The switch shall be located pump operator's panel for pump panel lights.

CAMERAS / INTERCOM

Camera Back-Up

There shall be a Safety Vision camera model number SV-625B-KIT provided. The camera shall be mounted up high at the rear of the vehicle to provide a wide-angle rear view with audio. The camera shall include a cable with metallic waterproof threaded o-ring seal connectors to ensure positive connection between video cable and camera to prevent unplugging due to vibration resulting in video loss to vehicle operator. The camera shall be interlocked with the chassis transmission. When the apparatus is placed in reverse the camera shall automatically be activated and when the transmission is placed in any other gear the screen shall return to the previously displayed screen.

Safety Vision Camera

A Safety Vision camera consisting of Safety Vision model SV-625B camera will be located one (1) each side of body for viewing of the dump chute. This camera will be interlocked with each dump chute. The system shall include a cable with metallic waterproof threaded o-ring seal connectors to ensure positive connection between video cable and camera to prevent unplugging due to vibration resulting in video loss to vehicle operator.

Will require the option for multiplex display or Safety Vision backup camera system.

Intercom

Two-way intercom system will be activated when cameras are in use or when activated by the driver. The driver will have open communication with the personnel around apparatus while it is in operation at low speed and always open two-way communication when chutes are deployed

MISC. ELECTRICAL

Alternating Headlights

The chassis high beam headlights shall alternately flash and shall be controlled by a switch inside the cab.

Back-Up Alarm

An electronic back-up alarm shall be supplied. The 97-dB alarm shall be wired into the chassis back-up lights to signal when the vehicle is in reverse gear.

12 Volt DC Power Distribution Module

A Blue Sea model 5032 12 place, split bus fuse block with ground, 12-volt DC power distribution module shall be provided. The module shall provide two isolated groups of six circuits and shall be wired through switched hot and battery hot, and include a battery ground.

Location: behind driver's seat.

LIGHTS - SCENE

Bracket Mount Light

One (1) Pioneer Summit Series 12V LED bracket mounted flood light model S30MW 30" long shall be provided. The light shall feature 24 LEDs`. The 135W 12V light shall draw 7.2 amps. A switch shall be provided, accessible to driver, for activation of light.

The light assembly shall be recessed below the rear arrow stick.

A Switch in the cab accessible to the driver shall activate light. Light will also activate when apparatus is placed in reverse.

Side Scene Light [Qty: 4]

Two (2) Whelen M9 Series M9LZC with chrome flange shall be installed on each side of the body. The lights shall be operated by a switch in the cab accessible to the driver.

The light assembly shall be located high side corners on both sides of body. Not to be obstructed by equipment. Lights shall be mounted next to Whelen M9 warning lights.

The rearmost lights on the apparatus shall activate when the apparatus is placed in reverse.

Cab Brow Light

One (1) Whelen Pioneer Plus PFH2 LED flood shall be mounted in the center of the cab above the windshield and below the light bar. The 12V light shall draw 12 amps. A switch shall be provided, accessible to driver, for activation of light.

The light assembly will be located under light bar and above windshield.

GROUND LADDERS

Alco-Lite Roof Ladder

An Alco-Lite PRL-16, 16` aluminum roof ladder shall be provided. A pair of folding 3/4" (0.75") steel roof hooks shall be attached to one end of the ladder, and a pair of steel spiked feet on the other end. The ladder shall meet or exceed the requirements of the current edition of NFPA 1931.

Alco-Lite Extension Ladder

An Alco-Lite 35` 3-section extension ladder shall be provided.

MISC. LOOSE EQUIPMENT

D.O.T. Required Drive Away Kit

Three (3) triangular warning reflectors with carrying case shall be supplied to satisfy the DOT reuirement.

EXTERIOR PAINT

Un-Painted Pump/Pre-Connect Module(s)

All applicable pump application modules shall have a sanded finish (not painted job color). Includes upper and lower pump modules, crosswalk module and/or speedlay/pre-connect module (as applicable). Rear mounted body/pump module shall be painted job color.

Any plumbing extending out past pump panel enclosure must be painted body color.

Paint Body Large

The apparatus body shall be painted to match the current apparatus color.

Any location where aluminum is penetrated after painting, for the purpose of mounting steps, handrails, doors, lights, or other specified components shall be treated at the point of penetration with a corrosion inhibiting pre-treatment (ECK Corrosion Control). The pre-treatment shall be applied to the aluminum sheet metal or aluminum extrusions in all locations where the aluminum has been penetrated. All hardware used in mounting steps, handrails, doors, lights, or other specified components shall be individually treated with the corrosion inhibiting pre-treatment.

After the paint process is complete, the gloss rating of the unit shall be tested with a 20-degree gloss meter. Coating thickness shall be measured with a digital MIL gauge and the orange peel with a digital wave scan device.

Commercial Cab Paint

The Kenworth cab shall be painted black by the chassis supplier. The cab will then be painted body color by the body manufacturer.

Paint shall be warranted by the body manufacturer.

STRIPING

Striping

Reflective striping shall be provided and installed by the dealer under the instruction of the customer.

Reflective Stripe in Rub Rail

The reflective stripe in the body rub rail shall be white.

Rear Body Reflective Striping

Chevron style Reflexite V98 striping shall be provided on the rear of the apparatus. The stripes shall consist of 6" Red/Black alternating stripes in an "A" pattern. The striping shall be located on the rear facing extrusions, panels and doors inboard and outboard of the beavertails if applicable.

Designated Standing / Walking Area Indication

1" wide yellow perimeter marking consisting of individual Reflexite diamonds shall be applied to indicate the outside edge of designated standing and walking areas above 48" from the ground in compliance with 2016 NFPA 1901. Steps, ladders and areas with a railing or structure at least 12" high are excluded from this requirement.

GRAPHICS

Will match the existing apparatus.

SUPPORT, DELIVERY, INSPECTIONS AND MANUALS

Approval Drawing

A detailed large-scale approval drawing of the pump panel(s) shall be provided. The drawing shall be provided for purchased unit prior to the construction process.

A detailed approval drawing for the cab center console.

A detailed approval drawing for any graphics.

WARRANTY & EXTENDED

Standard 1 Year Warranty

The apparatus manufacturer shall provide a full 1-year standard warranty. All components manufactured by the apparatus manufacturer shall be covered against defects in materials or workmanship for a 1-year period. All components covered by separate suppliers such as engines, transmissions, tires, and batteries shall maintain the warranty as provided by the component supplier. A copy of the warranty document shall be provided with the proposal.

10 Year 100,000 Mile Structural Warranty

The apparatus manufacturer shall provide a comprehensive 10 year/100,000-mile structural warranty. This warranty shall cover all structural components of the cab and/or body manufactured by the apparatus manufacturer against defects in materials or workmanship for 10 years or 100,000 miles, whichever occurs first. Excluded from this warranty are all hardware, mechanical items, electrical items, or paint finishes. A copy of the warranty document shall be provided with the proposal.

10 Year Stainless Steel Plumbing Warranty

The apparatus manufacturer shall provide a full 10-year stainless steel plumbing components warranty. This warranty shall cover defects in materials or workmanship of apparatus manufacturer designed foam/water plumbing system stainless steel components for 10 years. A copy of the warranty document shall be provided with the proposal.

10 Year Paint and Corrosion Warranty

The apparatus manufacturer shall provide a 10-year limited paint and corrosion perforation warranty. This warranty shall cover paint peeling, cracking, blistering, and corrosion provided the vehicle is used in a normal and reasonable manner.

The paint shall be prorated for 10 years as follows:

Topcoat & Appearance:

(Gloss, Color Retention, Cracking)

0 to 72 months	100%
73 to 120 months	50%

Coating System, Adhesion & Corrosion:

(Includes Dissimilar metal corrosion, Flaking, Blistering, Bubbling)

0 to 36 months	100%
37 to 84 months	50%
85 to 120 months	25%

Corrosion perforation shall be covered 100% for 10 years. Corrosion perforation is defined as complete penetration through the exterior metal of the apparatus.

The warranty period shall begin upon delivery of the apparatus to the original user-purchaser. A copy of the warranty document shall be provided with the proposal.

UV paint fade shall be covered in a warranty supplied and shall be for a minimum of 10 years.

INSPECTION TRIPS

Two inspection trips are to be provided. Both trips will be for three people. They are to be scheduled later. These trips shall cover the cost of flight, hotel, meals and transportation.

Commercial Chassis

KENWORTH

FLORIDA KENWORTH - ORLANDO (M490)
1800 NORTH ORANGE BLOSSOM TRAIL
ORLANDO, Florida 32854

SPARTAN MOTORS USA INC
907 7TH AVE N
BRANDON, South Dakota 57005
United States of America

Jason Upperco
Cell Phone: 321-297-7774
Office Phone: 407-425-3170
Email: jason.upperco@csmtruck.com

Wyatt Compton

Email:
wyatt.compton@spartanmotors.com

Vehicle Summary

Unit

Model:	T880 Series Conventional
Type:	FULL TRUCK
Description 1:	Ledyard Fire Company
Description 2:	T880 16k 46K

Application

Intended Serv.:	Fire truck service: Vehicles used in fi
Commodity:	Water.

Body

Type:	Tank.
Length (ft):	22
Height (ft):	13.5
Max Laden Weight (lbs):	66000

Trailer

No. of Trailer Axles:	0
Type:	
Length (ft):	0
Height (ft):	0
Kingpin Inset (in):	0
Corner Radius (in):	0

Restrictions

Length (ft):	120
Width (in):	102
Height (ft):	13.5

Chassis

Fr Axle Load (lbs):	16000
Rr Axle Load (lbs):	46000
G.C.W. (lbs):	62000
Road Conditions:	
Class A (Highway)	80
Class B (Hwy/Mtn)	15
Class C (Off-Hwy)	5
Class D (Off-Road)	0
Maximum Grade:	6
Wheelbase (in):	249
Overhang (in):	75
Fr Axle to BOC (in):	74
Cab to Axle (in):	175
Cab to EOF (in):	250
Overall Comb. Length (in):	372.5

Special Req.

U.S. Domestic registry, 50-state.

Approved by: _____ **Date:** _____

Note: All sales are F.O.B. designated plant of manufacture.

Sales Code	Std/ Opt	Description	Weight
Model			
0000810	S	**T880 Series Conventional**	**15,549**
0070060	S	**T880**	**0**
0072001	O	**Chassis operation will include stationary** application used in lower 48 states [US only]. Stationary operation is defined as running the engine under load while stationary at a substantial fraction of engine gross horsepower (60% or greater) for an extended period of time (longer than 5 - 10 minutes).	**0**
0080070	O	**CARB Exempt Application Emergency Vehicle Only.**	**0**
0090000	S	**Non-Sleeper w/rear axle capacity less than 59K.**	**0**
0098435	O	**State of Registry: Ohio**	**0**
Engine & Equipment			
0130333	O	**X15 565EV 565@2000 1850@1000** 2021 with Intebrake, Emergency Vehicle N09420 C333 0.....Reserve Speed Limit Offset (N09380 C334 0.....Maximum Cycle Distance (C334 N09360 C400 252...Reserve Speed Function Reset N09200 C399 120...Standard Maximum Speed Limit N09400 C401 10....Maximum Active Distance (C40 N09220 C402 0.....Expiration Distance (C402) N09540 C395 0.....Expiration Distance (C395) N09260 C121 60....Maximum Accelerator Pedal Ve N09440 C234 NO....Engine Protection Shutdown (N09460 C231 NO....Gear Down Protection (C231) N09580 C133 5.....Timer Setting (C133) N09680 C233 NO....Idle Shutdown Manual Overrul N09480 C132 1400..Max PTO Speed (C132) N09300 C128 60....Maximum Cruise Speed (C128) N09500 C239 NO....Cruise Control Auto Resume (N09520 C238 NO....Auto Engine Brake in Cruise N09240 C209 120...Hard Maximum Speed Limit (C2 N09780 C190 80....High Ambient Temperature Thr N09740 C188 40....Low Ambient Temperature Thre N09760 C189 60....Intermediate Ambient Tempera N09720 C382 YES...Enable Hot Ambient Automatic N09600 C396 YES...Enable Impending Shutdown Wa N09620 C397 60....Timer For Impending Shutdown N09640 C206 35....Engine Load Threshold (C206) N09560 C225 NO....Enable Idle Shutdown Park Br	**465**
1000046	O	**EPA Emissions Warranty Engine**	**0**
1000151	S	**PremierSpec**	**0**

Sales Code	Std/ Opt	Description	Weight
1000243	O	**Gearing Analysis: Performance** power before economy results.	0
1000251	O	**Customer's Typical Operating Spd: 60 MPH.**	0
1000684	O	**Effective VSL Setting NA**	0
1000858	O	**Engine Idle Shutdown Timer Disabled**	0
1000891	O	**Eff EIST NA Expiration Miles**	0
1002080	O	**Air compressor: Cummins 18.7 CFM, Naturally** Aspirated for Cummins X15 engines	0
1051200	S	**Air Cleaner: composite firewall mounted PACCAR or** Cummins engines	0
1099380	O	**Ember Separator mounted in the hood plenum**	0
1105220	O	**Fan Hub: Horton 2-Speed for X15**	0
1123555	S	**Cooling module: 1330 square inches.** Includes aluminum radiator core, aluminum charge air cooler, translucent surge tank and washer bottle, silicone hoses, and extended life coolant.	0
1160205	O	**Bugscreen** Front of grille on 2.1M MD, C500 ,T800, T880, and W900. Behind grille on T680 and 1.9M MD.	2
1247229	O	**EXH: 2021 RH Under DPF/SCR with RH Horizontal** tailpipe below rail	0
1321109	O	**Fuel Filter:PACCAR Standard Service Interval** Fuel/Water Separator. 2017 and Later Emissions	0
1321205	S	**Run Aid:Fuel Heat** *For Fuel Filter	0
1321305	S	**Start Aid:12V Heat** *For Fuel Filter	0
1500029	O	**Kenworth Fuel Cooler** Required for Cummins engines with a single fuel tank. Required for PACCAR MX-13 engine with a single fuel tank and stationary use: High RPM, low vehicle speed, sustained for longer than 1 hour. Optional for all other applications.	6
1812451	O	**Alternator: Delco 40SI 320 amp Brushless** with battery voltage sense	14
1821210	S	**Batteries: 3 PACCAR GP31 threaded post (700-730)** 2100-2190 CCA dual purpose.	0
1836103	O	**PACCAR Premium 12V Starter W/ Cummins X15 Engines** PACCAR 12 volt electrical system. With centralized power distribution incorporating plug-in style relays. Circuit protection for serviceability, 12-volt light system with circuit protection circuits number & color coded.	0
1840065	S	**12V low voltage disconnect for starter battery** protection.	0

Sales Code	Std/ Opt	Description	Weight
1840066	U	**Cab Power Cutoff SW on Cab Floor**	0
1900996	O	**Jump start terminals under hood.**	12
1901020	O	**Remote PTO/Throttle, 12-Pin, 500K, Back of Cab OR** Back of Sleeper, J1939, Remote Control Provision	0
1901078	O	**J1939 Harness Extension Under Hood at Firewall** Driver Side	0
Transmission & Clutch			
2016195	O	**Transmission: Allison 4500EVS 5-speed** w/o Retarder w/PTO provision 5th generation. Emergency Vehicle only. Includes shift control, transmission oil temperature gauge, oil level sensor & heat exchanger. Transynd transmission fluid is standard on all Allison 1000, 2000, 3000 & 4000 series transmissions.	478
2406005	O	**45 degree yokes on interaxle drivelines.**	11
2406803	O	**Driveline: 3 Dana SPL250XL W/ 2 centerbearings** Low maintenance offering from Spicer. On-highway 350K mi first service interval, 100K mi subsequent service interval on U-joint, splines lubed for life, quick disconnect end caps.	187
2410018	O	**Torque converter included w/Allison** Transmission.	0
2410151	O	**Pushbutton control center console mounted.** Class 8 with Allison Transmission.	0
2410244	O	**J1939 Park Brake Auto Neutral**	0
2429358	O	**Rear transmission support springs for** transmission PTO applications are required to ensure that engine flywheel housings are not overloaded when transmission PTO's are installed.	0
Front Axle & Equipment			
2506181	O	**Dana Spicer D2000 Front Axle rated 20K** standard track.	-27
2621078	O	**Front Brakes: 22K Bendix ES S-cam 16.5x6 in.**	-46
2690035	O	**Front Brake Drum: 22,000 lbs. 16-1/2x6 in. Cast.**	104
2702020	O	**Front Hubs Iron hub pilot 20,000 lbs. 10 Bolt** 16.5x6in. or 7in. or air disc brakes. 10 Bolt, 11-1/4 in. bolt circle. Consider Wheelguards (5850002) with aluminum wheels.	80
2741970	S	**ConMet PreSet Plus Hub package; front axle.**	0
2750001	S	**Hubcap: front vented.**	0
2765001	O	**Front Auto Slack Adjuster.**	0
2864116	O	**Front Springs: Taperleaf 16K w/shock absorbers**	-85

Sales Code	Std/ Opt	Description	Weight
		w/ maintenance-free elastomer spring pin bushings. Two leaf. Standard with rubber pins. Not available on W900L.	
2893642	O	**Dual power steering gear: 16-22K TRW THP60** Not for use on T3.	54
2899336	S	**Power Steering Cooler:Radiator Mounted Air-to-Oil**	0
2900616	O	**Threaded Bushings for taperleaf spring** 16K, 18/20K, 22K, 40K replacing rubber.	0
Rear Axle & Equipment			
3144183	O	**Dual Dana Spicer D46-172HP rear axle rated at** 46K. w/ 16mm housing and 2.06in. shaft diameter. Includes pump. Tandem rear axles.	-156
3200478	O	**Rear Axle Ratio - 4.78.**	0
3334004	S	**Dual Rear Brakes 16-1/2x7 in. to 46K;** Bendix ES-extended service S-cam.	0
3392005	S	**Dual Rear Brake Drums: cast.**	0
3407050	S	**Dual Rear Hubs: Aluminum hub pilot 46K** 11-1/4 in. bolt circle.	0
3441972	S	**ConMet PreSet Plus Hub package; dual rear axle.**	0
3465002	S	**Dual Rear axle automatic slack adjusters.**	0
3485209	O	**Spring Brake: 3030 high output dual.**	0
3495232	S	**Bendix 6S/6M anti-lock brake system w/ air** traction control (ATC) and electronic stability program (ESP) for full truck. Must code for additional body information.	0
3500006	O	**Inverted chambers for 16-1/2 x 7 in. brakes;** Replaces standard mount w/ higher mount.	0
3500057	O	**Interaxle Driveline: 1 Dana SPL170XL** Tandem Rear Axles Only	-2
3500072	O	**Tanker height less than 75 in. from top of frame** rail	0
3532194	O	**Wheel Differential Lock for Dana Spicer axles** D40-170(P)/D46-170(H)(P)(WT) forward rear axle & rear rear axle.	112
3747461	O	**Rear suspension: Tandem Hendrickson RT463 46K.** 54 in. axle spacing. Steel beams & barpin bushing. 7.19 in. saddle height. Unladen Height: 12.5 in. Laden Height: 11.2 in.	689
3830145	O	**Delete standard heavy-duty air springs for rear** suspension.	-28
3832008	O	**Heavy-duty torque rods for Hendrickson beam.** 46K and under suspensions.	15
3836500	O	**Heavy-duty gussets for forward suspension** crossmember on Airglide 400/460, Chalmers, or Hendrickson beam suspensions. This replaces the standard gussets.	12
Tires & Wheels			

Sales Code	Std/ Opt	Description	Weight
4017181	O	**Front Tires: Michelin XZY3 385/65R22.5 18PR** 42.4 in. Diameter, All Position. 19.6 in. SLR.	130
4277491	O	**Rear tires: Bridgestone M799 11R24.5 16PR.** 44 in. diameter, all position. 20.5 in. SLR. Code is priced per pair of tires.	200
4900008	O	**Rear Tire Quantity: 8**	0
5045216	O	**Front Wheel: Alcoa 82362 22.5x12.25 aluminum,** with Lvl One [TM] finish High Polish, hub-pilot mount. 11400lb. maximum rating. Super single. Standard track axles may be over 102 in. w/425 tires. Air disc brake compatible.	-10
5245265	O	**Rear Wheel: Alcoa 98565 24.5x8.25 aluminum,** with Lvl One [TM] High Polish finish, hub-pilot mount. 8000lb. maximum rating. Severe service. Code is priced per pair of wheels. Air disc brake compatible.	-48
5850040	O	**Wheelguards: all axles.**	2
5859010	O	**Single Front Axle: 2 wheels Dura-Bright Mirror** Polish Dura-Bright outboard surface of aluminum wheels.	0
5859012	O	**Dual Rear Axle Wheels: 4 wheels Dura-Bright** Mirror Polish Dura-Bright outboard surface of outer dual or single aluminum wheels.	0
5900008	O	**Rear Wheel/Rim Quantity: 8**	0
Frame & Equipment			
6054600	O	**Frame Rails: 10-5/8 x 3-1/2 x 5/16 in. Steel to** 337 in. to 416 in. Truck frame weight is 2.91 lb.-in. per pair of rails. Section modulus is 14.80, RBM is 1,776,000 in-lbs per rail. Frame rail availability may be restricted based upon application, axle/suspension capacity, fifth wheel setting, or component/dimensional specifications. The results of the engineering review may result in a change to the requested frame rail. If a change is required Kenworth Application Engineering will advise the dealer of the appropriate material specification for a substitute rail.	299
6141600	O	**Full Steel Insert: for 10-5/8 in. or 10-3/4 in.** Steel 337 in. to 416 in. or 2nd insert for 11-5/8 in. steel frame. Adds 1,149,000 in-lb to main rail RBM. Truck insert weight is 2.05 lb.-in. per pair of rails. Full frame insert length is equal to wheelbase plus rear frame cutoff plus dimension forward of front axle by model: T660, T680, T800, T880 = 21.26 in.; C500B = bumper setting minus 0.79 in.; W900B = 5.27 in., W900L = 1.50 in., W900S = 3.27 in.; T440/T470 50 in. bumper setting = 21.26 in., T470 73 in. bumper setting = 72.3 in.	708
6302461	O	**Bumper: Tapered chrome steel channel. Requires a** bumper setting code.	63
6319485	S	**48.5 in. Bumper setting. Requires a bumper code.**	0
6321005	O	**Removable Front Tow Hooks: 2.**	15

Sales Code	Std/ Opt	Description	Weight
6390088	O	**3D Frame Layout to dealer prior to build date.** Information only, no changes. This provides a 3D frame layout in a Pro/E or STP data file suitable for use with many CAD programs.	0
6390091	O	**Frame layout picture to dealer prior to build** date. Information only, no changes. This provides basic frame layout illustration in a PDF file. Adobe Reader or other software capable of viewing PDF files is required on your computer. A copy of the frame layout can be obtained once the engineering work has been completed. This drawing will help the body builder define clearance requirements for the chassis.	0
6390312	O	**Brackets: Iron front spring drive. Included with** front spring capacity of 16,000 lbs or greater; code not required.	47
6391201	O	**Custom Frame Layout: one chassis** CFL F/T: UNDER DRIVER SIDE	0
6400633	O	**Battery box: Temporary across the rails. Includes** maximum cable length available.	-110
6409908	O	**Battery box location: BOC across the rails.**	0
6451094	O	**T470, C5, T6, T8 polished DPF/SCR or CNG cover** with step. For use w/ 2010 or later exhaust systems. For T8, use extended length polished battery box on opposite rail to match the length of under cab components.	0
6721102	S	**Rear mudflap arms: Betts B-25 standard-duty,** straight. Includes B1732 mounting brackets as standard.	0
6722000	S	**Rear mudflap shields: White plastic antisail w/** Kenworth logo.	0
6742009	S	**Square end-of-frame w/o crossmember; non-towing.**	0

Fuel Tanks & Equip

7210060	O	**Fuel Tank: 60 US gallon 24.5in. aluminum under** replace. Class 8 fuel tanks w/o locking caps include an anti-siphon device on the filler neck.	-15
7722151	O	**DEF tank clear BOC (CBOC), 7.3 gallons.** Requires LH under cab fuel tank.The tank will be located inboard of the LH under cab fuel tank. There is no frame space required to locate this tank. Not for use on sleeper chassis. Standard capacity is calculated by fuel capacity of the vehicle and will accommodate two diesel fill-ups for every DEF fill-up. For 1:1 DEF fuel fill ratio, add 7889204. For use with 2.1m models only.	-19
7831042	O	**Fuel Tank Steps: 6in. wide upper & lower F/1 LH** under round tank 24.5in. NFPA Compliant. Includes fuel tank crossbrace.	8
7840015	O	**Polish only one aluminum tank.**	0
7889061	O	**Polished stainless steel tank straps for 1 tank.**	0
7889204	O	**DEF to fuel fill ratio between 1:1 and 2:1.**	0
7889245	S	**Anti-siphon device in fuel tank filler neck.** For any number of fuel tanks.	0

Sales Code	Std/ Opt	Description	Weight
7889604	S	**DEF tank location is LH.**	0
7920060	O	**Location: 60 gal fuel tank LH under cab**	0

Cab & Equipment

8025301	S	**Cab: Stamped aluminum cab with panoramic curved** glass windshield. Standard with stamped aluminum doors, heavy duty in-swinging hinges, and triple sealed doors. Manufactured using self-piercing rivets and structural adhesive. Includes LED exterior marker lights and turn signals.	0
8090604	O	**Hood: T880 Standard Length With Mechanically** Fastened Fenders. 122.6 inch BBC.	15
8098212	O	**Bright Engine Air Intake** Chrome Trimmed Engine Air Intake on Both Sides of Hood	0
8108003	O	**Ember Filter For Cabin Air.** Used to keep embers out of the HVAC filter element. Cannot be used with code 8108002.	2
8108011	S	**Cab HVAC - Day Cab and 40in Sleeper** System With Defrost, A/C, and 48,000 BTU/hr Heater. Includes automatic temperature control with one touch defrost operation and dash mounted cab temperature and solar intensity sensors. Pleated fresh air filter and cabin recirculation air filter standard. The Kenworth HVAC system is designed to provide optimal heating and cooling in all operating environments without need for additional insulation. Cab HVAC without sleeper heater AC is available with 40in sleeper.	0
8190138	O	**Shutoff Valves to Isolate Primary Heater** Remote mounted on frame under cab.	0
8201047	S	**Kenworth Smartwheel: 18 in. Non-Leather With** Integrated Radio and Cruise Controls.	0
8201051	O	**Column Mtd Retarder Control, RH Side** Use with Manual & Allison Transmissions Only.	0
8201200	S	**Adjustable telescoping tilt steering column.**	0
8203060	O	**5 sets of keys. Replaces standard 2 sets of keys.**	0
8208495	O	**Two spare switches: Wired to power.**	0
8220106	O	**Gauge: Dash mounted air filter restriction gauge.**	0
8221160	O	**Gauge: Engine Oil Temperature Gauge With Integral** warning light. The NavPlus HD unit includes a virtual engine oil temperature gauge.	0
8222404	S	**Gauge: DD Virtual Gauge - Oil Temp Engine**	0
8222413	S	**Gauge: DD Virtual Gauge - Manifold** Pressure Boost	0
8222414	S	**Gauge: DD Virtual Gauge - Engine Percent** Torque	0

Sales Code	Std/ Opt	Description	Weight
8222722	O	**Gauge: Manifold Pressure Gauge.** The NavPlus HD unit includes a virtual manifold pressure gauge.	0
8282027	S	**Main Instrument Package: 15" Digital Display.** Includes Speedometer, Tachometer, Primary Air Pressure, Secondary Air Pressure, Fuel Level #1, DEF Level, DPF Filter Status, Fuel Economy, Oil Pressure, Coolant Temp, OAT and Voltmeter, and Air Application.	0
8282107	O	**Large flat panel on rider side dash for** customer-installed controls. Reduces gauge count by 6.	0
8300008	S	**Interior color: Slate Gray**	0
8330102	S	**Interior package: Vantage daycab** Includes durable headliner and vinyl sidewalls with geometric patterned trim and anodized aluminum accents throughout. Convenient overhead storage cubbies, full size glove box, two center console cupholders, and large door pad map pocket. Standard LH/RH power windows, electric door locks, interior LED lighting, nighttime-friendly red ambient lighting for dash and footwell, and door mounted courtesy light. Includes two standard 12V power outlets. Driver sunvisor includes strap.	0
8390635	O	**Rubber Floormat - NFPA Compliant**	0
8412811	O	**Driver Air Seat: NFPA Compliant: HB Vinyl** Includes Dual Armrests and Occuapant Sensor. A Third-Party Vehicle Data Recorder (VDR) Harness Must Be Installed Post-Factory.	0
8462802	O	**Rider Air Seat: NFPA Compliant: HB Vinyl** Includes Dual Armrests and Occuapant Sensor. A Third-Party Vehicle Data Recorder (VDR) Harness Must Be Installed Post-Factory.	0
8489912	O	**NFPA Compliance Kit: 2.1m Includes seat** occupancy sensors. Seat belt switches, VDR & seat sensor harness, reflective labels, and a second copy of operators manual.	5
8490181	S	**Seat Color: Black**	0
8496575	O	**Driver & Rider Seat Belts: Red, NFPA, Replaces** Standard Seat Belts. (Available for NFPA RD Bench)	0
8601432	O	**Kenworth Radio DEA710 AM/FM/WB/USB, Bluetooth**	0
8698974	S	**Base Level Audio System - Daycab:High Performance** Door Speakers.	0
8700197	S	**Turn Signal: Non-Self Cancelling**	0
8700283	S	**LH and RH Trip Ledge Rain Deflectors**	0
8700663	S	**Kenworth TruckTech+** The Kenworth Remote Diagnostics system provides the Worlds Best reporting of engine and aftertreatment fault codes, as well as enhanced support for the truck owner through rapid communication of fault severity and recommended actions. This option is Standard on all Heavy Duty Kenworths with a PACCAR MX engine, Cummins X15 engine, PX engine or Natural Gas engine. Optional on Medium Duty Kenworths.	0

Sales Code	Std/ Opt	Description	Weight
8800380	O	**Grabhandle: LH & RH SOC Non-Slip Ergonomic** Grab Handles Mounted To The Left Hand and Right Hand Exterior Of The Cab For Entry and Exit. NFPA Compliant.	6
8800402	S	**Dual Cab Interior Grabhandles: A Pillar Mounted** Dash Wrap and B Pillar Mounted Grabhandles	0
8832113	S	**Kenworth Daylite Door with standard LH/RH** electric door locks and LH/RH electric window controls.	0
8841411	S	**Single air horn under cab.**	0
8850139	S	**Look-Down, Pass. Door, Black 11x6**	0
8865003	O	**Aero Mirror: Dual Kenworth Chrome Aero. Motorized** Heated Mirrors, 7in X 13in With Chrome Mirror Shell and Black Mirror Arms. Also Includes LH/RH Heated 6in X 7in Convex Mirrors. Mirror Brackets Set For 8-1/2 ft Load Width. Mirror Controls Located On Driver Side Door Pad.	0
8871447	O	**Rear cab stationary window with dark tint** 19in x 36in.	0
8890101	S	**One-piece bonded-in windshield with curved glass.** Standard.	0
8890135	S	**Exterior stainless steel sunvisor.**	19
8890300	O	**Fender close-out: Below headlamp, behind** bumper. *NOT available with 3-piece bumper.	0
8890349	S	**Wheelwell Fender Extension: 2.5 Inches**	0
8890876	S	**Kenworth Cab/Sleeper Air Suspension.**	0
8891013	O	**Extreme Temperature Insulation: Daycab** Additional cab side wall insulation with improved material properties over standard insulation package.	0
Lights & Instruments			
9010553	S	**Headlamps: SAE Dual Halogen Complex Reflector**	0
9022137	S	**Marker Lights: Five, rectangular, LED**	0
9030016	S	**Turn Signal Lights: Flush mounted LED. Mounted at** top of fender wheel arc.	0
9030052	S	**LED Stop,Turn,Tail: With Two LED** Backup Lights and With An LED License Plate.	0
9090039	S	**Marker Lights: Interrupter Switch.** Included in Turn Signal For All Models Except T3. The T3 Switch Is In The Dash.	0
9090052	O	**Brake Lights on when Engine Brake Active.** Can only be selected when chassis also has engine brake. Cannot be used with options to delete engine brake.	0
9090115	O	**Reflectors: Two Midframe**	0

Sales Code	Std/ Opt	Description	Weight
9090126	O	**Electric Backup Alarm: Meets SAE J994 & OSHA** requirements.	4
9090302	O	**Junction Box: Mounted Behind Cab or Sleeper** Not Mounted at End of Frame.	1
9090849	O	**Polyswitches replacing fuses. Switch will** automatically reset after removal of excess load.	0
Air Equipment			
9101218	S	**Air Dryer: Bendix AD-HF Puraguard Heated**	0
9102040	O	**Moisture ejection valve: Two Bendix DV-2 heated** drain valves on service tanks. Use w/ AD-IS or AD-HF.	0
9140020	S	**Nylon air tubing in frame & cab, excluding hoses** subject to excessive heat or flexing.	0
9140289	O	**Air tanks: mounted inside frame flanges** where possible. This code requires the use of a custom frame layout code.	0
Extended Warranty			
9200002	O	**Base Warranty - Severe Service** 12 months / 50,000 miles / 80,000 km.	0
9212611	O	**24 Month TruckTech+ Subscription for Cummins** Engines	0
9220001	O	**Base Warranty: Emissions** 5YR/100K MI - EPA Engine (Does not include CARB Clean Idle sticker)	0
Miscellaneous			
9409852	O	**GHG Secondary Manufacturer: Does Not Apply**	0
9490003	O	**Additional lead time required for off highway &** /or specialty component truck.	0
9490206	O	**Warning triangle reflector kit: Shipped loose.** Kit consists of 3 triangles in plastic carrying case. Not floor mounted.	4
9490417	O	**One 5 lb. dry chemical type fire extinguisher** mounted inboard of driver seat. Class ABC.	11
9491659	S	**VMUX Architecture**	0
Promotions			
Paint			
9700000	O	**Paint color number(s).** N9702 A - L0612 RED N9704 B - L0216 BLACK N9720 FRAME N0001 BLACK	0
9943004	O	**Bumper Unpainted**	0
9943052	O	**Day Cab Pearl Metallic Paint**	0

Sales Code	Std/ Opt	Description	Weight
9944822	O	**2 - Color Cust Design - Day Cab - Lo Complex** Must submit design for approval. A Custom Design and Color Layouts order form is required with all custom designs. When transmitting ETO Electronic Paint Order, please submit all custom forms to Kenworth Sales Department, Attn: Paint Coordinator. Custom paint designs will be reviewed on a case by case basis. Approval or disapproval is at the discretion of Kenworth Truck Company. Consult with your paint coordinator if the chassis paint sketch includes any of the following items: Items attached to the frame or below the frame are to be painted a color that is different than the frame paint color, Items attached to the cab or sleeper are to be painted a color that is different than the cab or sleeper paint color, The requested paint number cannot be identified as a number or type approved by Kenworth.	0
9960021	O	**Paint design continued BOC/BOS -includes front of** side extenders, but does not include back of side extenders. *Narr PAINT TO MATCH CUSTOMER SAMPLE*	0
9965510	S	**Base coat/clear coat.** The Kenworth Color Selector contains additional instructions, as well as information on Kenworth paint guidelines and surface finish applications. Kenworth is standard with Dupont Imron Elite paint.	0

Order Comments

KENWORTH

Total Weight	18,783

Prices and Specifications Subject to Change Without Notice.

Unpublished options may require review/approval.
Dimensional and performance data for unpublished options may vary from that displayed in CRM.

PRICING DISCLAIMER

While we make every effort to maintain the web site to preserve pricing accuracy, prices are subject to change without notice. Although the information in this price list is presented in good faith and believed to be correct at the time of printing, we make no representations or warranties as to the completeness or accuracy of this information. We reserve the right to change, delete or otherwise modify the pricing information which is represented herein without any prior notice. We carefully check pricing specifications, but occasionally errors can occur, therefore we reserve the right to change such prices without notice. We disclaim all liability for any errors or omissions in the materials. In no event will we be responsible for any damages of any nature whatsoever from the reliance upon information from these materials. Please check your order prebills to confirm your pricing information

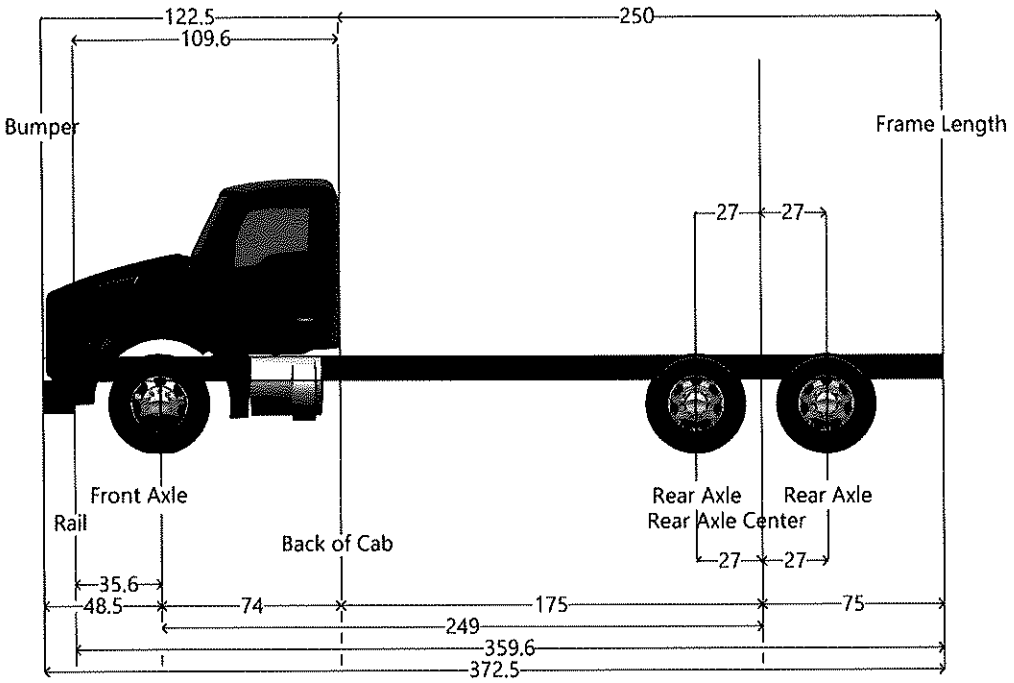
FRAME RAKE

The listed heights should be considered approximations due to variations which may occur in component manufacturing processes, spring set, and the way in which the vehicle is loaded.

Component	Sales Code	Description	Laden	Unladen
Frame	6054600	Frame Rails: 10-5/8 x 3-1/2 x 5/16 in. Steel to	10.6	10.6
Front Spring	2864116	Front Springs: Taperleaf 16K w/shock absorbers	10.6	12.0
Front Axle Drop 3.5"	2506181	Dana Spicer D2000 Front Axle rated 20K	0.0	0.0
Height Adj.	0000000	No adjustment	0.0	0.0
Front Tires	4017181	Front Tires: Michelin XZY3 385/65R22.5 18PR	19.6	20.4
		Front Frame Height	**40.8**	**43.0**
Frame	6054600	Frame Rails: 10-5/8 x 3-1/2 x 5/16 in. Steel to	10.6	10.6
Subframe	0000000	No sub frame	0	0
Suspension	3747461	Rear suspension: Tandem Hendrickson RT463 46K.	11.2	12.5
Rear Tires	4277491	Rear tires: Bridgestone M799 11R24.5 16PR.	20.5	21.7
		Rear Frame Height	**42.3**	**44.8**
		Frame Rake	**1.5**	**1.8**
		Frame Rake Slope (%)	**0.6**	**0.7**

These characteristics are considered to be out of standard range: Laden rake more than 1% of wheelbase from level (positive or negative).

HORIZONTAL DIMENSIONS



Dimension	Measurement	Start	End
Axle Spacing	54	222	276
Bumper to Back of Cab	122.5	-48.5	74
Bumper to Front Axle	48.5	-48.5	0
Bumper to Front Frame	12.9	-48.5	-35.6
Cab to End of Frame	250.0	74	324
Cab to Rear Axle	175.0	74	249
Effective Bumper to Back Of Cab	122.5	-48.5	74
Frame Length	359.6	-35.6	324
Front Axle to Back of Cab	74.0	0	74
Front of Frame to Axle	35.6	-35.6	0
Load Space	250.0	74	324
Overall Length	372.5	-48.5	324
Overhang	75.0	249	324
Pusher Offset #1	27.0	222	249
Pusher Offset #2	27.0	222	249
Pusher Offset #3	27.0	222	249
Tag Offset	27.0	249	276
Wheelbase	249	0	249

VEHICLE WEIGHT RATING

FRONT AXLE COMPONENTS

Component	Sales Code	Description	Ratings
Axle	2506181	Dana Spicer D2000 Front Axle rated 20K	20,000
Springs	2864116	Front Springs: Taperleaf 16K w/shock absorbers	16,000
Power Steering	2893642	Dual power steering gear: 16-22K TRW THP60	22,000
Hubs, Drums	2702020	Front Hubs iron hub pilot 20,000 lbs. 10 Bolt	20,000
Brakes	2621078	Front Brakes: 22K Bendix ES S-cam 16.5x6 in.	22,000
Tires	4017181	Front Tires: Michelin XZY3 385/65R22.5 18PR	18,740
Wheels	5045216	Front Wheel: Alcoa 82362 22.5x12.25 aluminum,	24,600

Requested Front (Lbs):	16,000
Minimum:	8,000
Maximum:	16,000

The front axle weight rating cannot exceed 16000

REAR AXLE COMPONENTS

Component	Sales Code	Description	Ratings
Axle	3144183	Dual Dana Spicer D46-172HP rear axle rated at	46,000
Hubs, Drums	3407050	Dual Rear Hubs: Aluminum hub pilot 46K	46,000
Service Brakes	3334004	Dual Rear Brakes 16-1/2x7 in. to 46K;	46,000
Spring Brakes	3485209	Spring Brake: 3030 high output dual.	52,000
Suspension	3747461	Rear suspension: Tandem Hendrickson RT463 46K.	46,000
Tires	4277491	Rear tires: Bridgestone M799 11R24.5 16PR.	52,880
Wheels	5245265	Rear Wheel: Alcoa 98565 24.5x8.25 aluminum,	66,400

Requested Rear (Lbs):	46,000
Minimum:	16,000
Maximum:	46,000

The rear axle weight rating cannot exceed 46000

GROSS COMBINATION WEIGHT RATING

GCWR (lbs)	66,000
Min	10,000
Max	999,000

The Gross Combination Weight Rating cannot exceed 999000

WEIGHT DISTRIBUTION

Model: T880

Actual performance of a specific unit can be affected by your operating conditions. The performance calculations should only be used as a guideline.

Recommended payload center of gravity to achieve specified ground loads; measured from centerline of drive axles: 25 in. from the centerline of the drive axle(s).

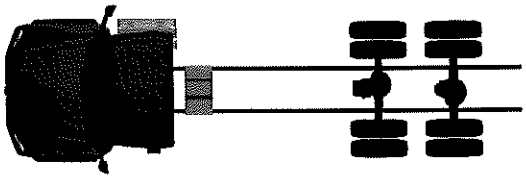
Weight (lbs)	Front	Rear	Total
Chassis	11071	7712	18783
Tools/Driver	282	93	375
Fuel & DEF	395	104	499
Max Payload	4252	38091	42343
Auxiliary Payload	0	0	0
Total	16000	46000	62000
Specify Ground Load	16000	46000	

Auxiliary Payload

Item	Location from FA CL	Weight	Point Description
Load Point #1	0	0	
Load Point #2	0	0	
Load Point #3	0	0	
Component(s)	-	0	Composite Totals

Fifth wheel slide length is 0 inches
Selected rearmost setting is 0 inches
Wheelbase measurement: 249 inches
Overhang measurement: 75 inches

FRAME LAYOUT



Note: Optional content may be displayed. The order has not yet received an engineering review. The actual arrangement of components may not be exactly as pictured. Additional changes may be made to the layout by Kenworth. Add a Custom Frame Layout code if an exact layout is required.

Selected Options (Wheelbase: 249)

Sales Code	Description	Length	Side
7210060	Fuel Tank: 60 US gallon 24.5in. aluminum under	30.6	Left
7722151	DEF tank clear BOC (CBOC), 7.3 gallons.	20	Left
6400633	Battery box: Temporary across the rails. Includes	20	Center

SPEED & GRADE PERFORMANCE REPORTS

Cruise Report (Engine Fan Off)

Configuration:	T880 Series Conventional / FULL TRUCK GCW: 62000
Quote/DTPO/CO:	QUO-879400-N8P7L6
Engine:	0130333 X15 565EV S6S@2000 1850@1000
Transmission:	2016195 Transmission: Allison 4500EVS 5-speed
Rear Axle:	3144183 Dual Dana Spicer D46-172HP rear axle rated at
Rear Tire:	4277491 Rear tires: Bridgestone M799 11R24.5 16PR. | Revs/Mile: 472
Operating Conditions:	0% Rolling Resistance

Startability

Transmission Ratio	Maximum Starting Grade
4.7	39.66
2.21	18.65

Engine RPM:	**600**	**700**	**800**	**900**	**1000**	**1100**	**1150**	**1200**	**1300**	**1400**	**1500**	**1600**	**1700**	**1800**	**1900**	**2000**	**2100**
Gross Torque:	918	1020	1200	1380	1583	1761	1850	1850	1850	1850	1850	1800	1745	1650	1525	1400	1238
Net Torque:	809	910	1082	1254	1445	1613	1697	1698	1700	1701	1703	1657	1607	1520	1404	1289	1139
Net HP:	92	121	165	215	275	338	372	388	421	454	486	505	520	521	508	491	455

Gear Ratios: TRN (1): 4.7 RAX (1): 4.78

Speed (MPH):	3.4	4.0	4.5	5.1	5.7	6.2	6.5	6.8	7.4	7.9	8.5	9.1	9.6	10.2	10.8	11.3	11.9
Grade (%):	15.8	18.0	21.7	25.4	29.8	33.7	35.8	35.8	35.8	35.9	35.9	34.8	33.6	31.5	28.8	26.2	22.9

Gear Ratios: TRN (2): 2.21 RAX (1): 4.78

Speed (MPH):	7.2	8.4	9.6	10.8	12.0	13.2	13.8	14.4	15.6	16.8	18.1	19.3	20.5	21.7	22.9	24.1	25.3
Grade (%):	6.9	7.9	9.5	11.2	13.1	14.7	15.5	15.5	15.5	15.5	15.5	15.1	14.6	13.7	12.5	11.4	9.9

Gear Ratios: TRN (3): 1.53 RAX (1): 4.78

Speed (MPH):	10.4	12.2	13.9	15.6	17.4	19.1	20.0	20.9	22.6	24.3	26.1	27.8	29.5	31.3	33.0	34.8	36.5
Grade (%):	4.5	5.1	6.3	7.4	8.7	9.8	10.3	10.3	10.3	10.3	10.3	10.0	9.6	9.0	8.2	7.4	6.3

Gear Ratios: TRN (4): 1 RAX (1): 4.78

Speed (MPH):	16.0	18.6	21.3	23.9	26.6	29.3	30.6	31.9	34.6	37.2	39.9	42.6	45.2	47.9	50.5	53.2	55.8
Grade (%):	2.6	3.0	3.7	4.4	5.2	5.9	6.2	6.2	6.2	6.1	6.1	5.8	5.5	5.1	4.5	3.9	3.2

Gear Ratios: TRN (5): 0.76 RAX (1): 4.78

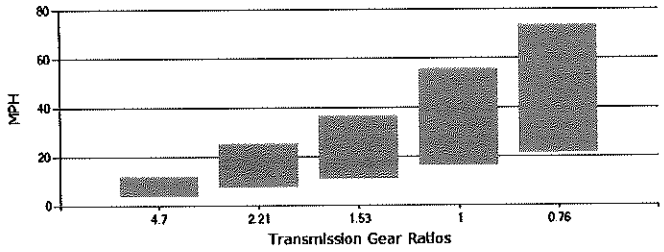
Speed (MPH):	21.0	24.5	28.0	31.5	35.0	38.5	40.2	42.0	45.5	49.0	52.5	56.0	59.5	63.0	66.5	70.0	73.5
Grade (%):	1.7	2.0	2.5	3.0	3.6	4.0	4.3	4.2	4.1	4.1	4.0	3.7	3.4	3.0	2.5	2.0	1.3

Engine RPM:	**600**	**700**	**800**	**900**	**1000**	**1100**	**1150**	**1200**	**1300**	**1400**	**1500**	**1600**	**1700**	**1800**	**1900**	**2000**	**2100**
Gross Torque:	918	1020	1200	1380	1583	1761	1850	1850	1850	1850	1850	1800	1745	1650	1525	1400	1238
Net Torque:	809	910	1082	1254	1445	1613	1697	1698	1700	1701	1703	1657	1607	1520	1404	1289	1139
Net HP:	92	121	165	215	275	338	372	388	421	454	486	505	520	521	508	491	455

SPEED & GRADE PERFORMANCE REPORTS

Geared Speed Report (Engine Fan Off)

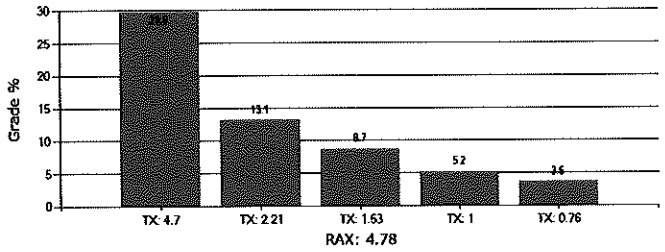
Configuration:	T880 Series Conventional / FULL TRUCK GCW: 62000
Quote/DTPO/CO:	QUO-879400-N8P7L6
Engine:	0130333 X15 565EV 565@2000 1850@1000
Transmission:	2016195 Transmission: Allison 4500EVS 5-speed
Rear Axle:	3144183 Dual Dana Spicer D46-172HP rear axle rated at
Rear Tire:	4277491 Rear tires: Bridgestone M799 11R24.5 16PR. | Revs/Mile: 472
Operating Conditions:	0% Rolling Resistance



SPEED & GRADE PERFORMANCE REPORTS

Gradability Report (Engine Fan Off)

Configuration:	T880 Series Conventional / FULL TRUCK GCW: 62000
Quote/DTPO/CO:	QUO-879400-N8P7L6
Engine:	0130333 X15 565EV 565@2000 1850@1000
Transmission:	2016195 Transmission: Allison 4500EVS 5-speed
Rear Axle:	3144183 Dual Dana Spicer D46-172HP rear axle rated at
Rear Tire:	4277491 Rear tires: Bridgestone M799 11R24.5 16PR. | Revs/Mile: 472
Operating Conditions:	0% Rolling Resistance



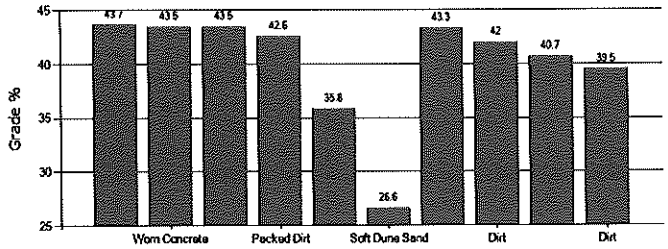
Gradability Report (Engine Fan Off)

Gear	TX-Ratio	RAX-Ratio	Peak Torque % Gradability	Peak Torque Road Speed (MPH)
1	4.70	4.78	29.80	5.66
2	2.21	4.78	13.05	12.03
3	1.53	4.78	8.67	17.38
4	1.00	4.78	5.21	26.59
5	.76	4.78	3.55	34.99

SPEED & GRADE PERFORMANCE REPORTS

Startability Report (Engine Fan Off)

Configuration:	T880 Series Conventional / FULL TRUCK GCW: 62000
Quote/DTPO/CO:	QUO-879400-N8P7L6
Engine:	0130333 X15 565EV 565@2000 1850@1000
Transmission:	2016195 Transmission: Allison 4500EVS 5-speed
Rear Axle:	3144183 Dual Dana Spicer D46-172HP rear axle rated at
Rear Tire:	4277491 Rear tires: Bridgestone M799 11R24.5 16PR. | Revs/Mile: 472
Operating Conditions:	0% Rolling Resistance



Customer Name: Ledyard Fire Company District #1				
Completed By: Ryan Haas	**Drawing Rev: 0**			
Wheelbase (inches):	248			
Gross Front Axle Rating GAWR (lbs.):	18000	0.28125		
Gross Rear Axle Rating GAWR (lbs.):	46000			
Gross Vehicle Weight Rating GVWR (lbs.):	64000			
Description	**Weight**	**CGA**	**Front**	**Rear**
Chassis - Kenworth T880				
Fuel / DEF	450			
Driver & Officer	540			
Cab Step Dress Up Panels	75			
Cab Equipment Allowance	125			
Bumper Extension	125			
Side Control Pump Module	3000			
Crosslay Hose / Dividers	300			
Pumphouse Total Weight	**3300**			
Body Module	4600			
Ladder Rack / Ladders / Suction Hose	600			
Suction Hose Compartment	100			
Hose Bed Dividers	200			
Hose Bed Storage Allowance	1500			
Hose Bed Hinged Cover	0			
3000 Gallons Water	25217			
0 Gallons Foam	0			
Dry Tank Weight	2750			
Booster Reel	300			
Side Dump Chutes	150			
Rear Sump Chute	75			
Body Total Weight	**34967**			
L1 / R1 Equipment	875			
L1 / R1 Shelves / Trays	150			
L2 / R2 Equipment	375			
L2 / R2 Shelves / Trays	100			
L3 / R3 Equipment	375			
L3 / R3 Shelves / Trays	0			
L4 / R4 Equipment	250			
L4 / R4 Shelves / Trays	75			
Equipment Total Weight	**2000**			
Included Reserve				
TOTALS -				

Spartan Specifications

QUOTATION — New England Fire Equipment and Apparatus Corp.

Ledyard Volunteer Fire Company
Zachary Willis
11 Fairway Drive
Ledyard, CT 06339
860-464-9222
zwill5368@yahoo.com

New England Fire Equipment & Apparatus
10 Stillman Road
North Haven, CT 06473
203-239-5678
dbunnell@nefea.com

Exp. Date: 08/10/2022
Quote No: 10141-0001
08/03/2022

PG	PART NO	S		DESCRIPTION	QTY	ID
1				**== Tanker Dryside - Boiler Plate - 10.220 06/06/22 ==**		**ERVS**
	00-00-0050			STAR QW Data Book v10.22 Release: 6.6.2022 / Expires: 10.15.2022	1	ERVS
				BOILERPLATE		**ERVS**
	00-00-1625		>	BOILER PLATE - Star Dryside Tanker - (Generic Specs for BP- NO Brand)	1	ERVS
1	00-01-2700		>	|-- General Specifications (Generic Specs), Tanker	1	ERVS
	00-01-3000		>	|-- NO Dealer BIO Details- Use Drop Down to add a 'Dealer' section adds	1	ERVS
6	00-03-1110			|-- Bid (Generic Specs) Drawing	1	ERVS
6	00-03-1212		>	|-- Pre-Con (Generic Specs) Drawing WITH Pump Panel Approval	1	ERVS
7	00-05-2000			|-- Bid Security - 10% (Use for pre-bid specs)	1	ERVS
7	00-06-1000		>	|-- Performance Bond (Generic Specs)	1	ERVS
	00-07-2500			|-- NO Warranty Bond	1	ERVS
	00-08-3000			|-- Non Single Source Manufacturer	1	ERVS
7	00-08-4110			|-- Tag On Order/Cooperative Purchasing Agreement (Generic)	1	ERVS
7	00-10-4000		>	|-- Finite Element Analysis (Generic specs)	1	ERVS
8	00-13-1000			|-- 2 Hard Copy Sets Supplied Component Info, Pumper/Tanker (Generic Specs)-English	1	ERVS
9	00-13-2010			|-- (Qty) Hard Copy Set-Electrical Schematics-English	1	ERVS
9	00-13-9000			|-- Warning and Information Labels - English	1	ERVS
9	00-30-5000			|-- Online Customer Interaction with pump & plumbing (Generic Specs)	1	ERVS
10	00-40-0100		>	|-- Liability Insurance, $10 mill (Generic Specs)	1	ERVS
10	00-60-1000			|-- General Warranty, -2 Year (Generic Specs)	1	ERVS
10	00-90-8200			|-- 10 Year Plumbing Warranty, (Generic Specs)	1	ERVS
				PUMP CERTIFICATION AND TESTING		**ERVS**
10	00-10-0100			Third Party Pump & Low-Voltage Electrical Certification Test (1901)-Full Specs	1	ERVS
				INSPECTIONS		**ERVS**
	00-30-0600			Apparatus Inspections, Tanker	1	ERVS
19	00-30-1000		>	|-- Factory Pre-construction Conference with Factory Personnel	1	ERVS
	00-30-2005			|-- NO Mid-Construction Inspection Conference	1	ERVS
19	00-30-4000		>	|-- Final Inspection	1	ERVS
				APPARATUS TRAINING		**ERVS**
	00-38-0200			NO Apparatus Training	1	ERVS
				DIMENSIONAL REQUIREMENTS		**ERVS**
	00-95-0000			Apparatus Requirements, Pumper/RM Pumper/Dryside Tanker	1	ERVS
19	00-95-1E00	S	>	|-- Maximum Overall Length Requirement (420" OAL)	1	ERVS

MAXIMUM OVERALL LENGTH REQUIREMENT

The apparatus specified shall be constructed as detailed and shall

PG	PART NO	S		DESCRIPTION	QTY	ID
				NOT exceed a maximum overall length of 420 inches.		
19	00-95-2E00	S	>	|-- Maximum Overall Height Requirement (138" OAH)	1	ERVS
				MAXIMUM OVERALL HEIGHT REQUIREMENT		
				The apparatus specified shall be constructed as detailed and shall NOT exceed a maximum overall height of 138 inches.		
19	00-95-3E00		>	|-- Maximum Overall Width, (OAW) = 99" (Apparatus Body)	1	ERVS
20	00-95-5E50			|-- NO Maximum Wheelbase	1	ERVS
20	00-95-9E00			|-- NO Altitude Performance Requirement	1	ERVS
20				**== Tanker Dryside - Chassis - 10.220 06/06/22 ==**		**ERVS**
				CHASSIS		**ERVS**
	01-00-1150			(2-Door) COMMERCIAL CHASSIS, Tanker	1	ERVS
	01-00-2555		< >	|-- Kenworth (2) Door (Tandem Axle){Make sure body is tandem axle config} Tanker	1	ERVS
				Complete this form and submit it to Spartan for chassis quotation		
	01-02-3000		>	|-- Preferred Chassis Provider - Spartan Discretion	1	ERVS
20	06-40-0020			|-- Dress-Up Panels, 2DR Cab	1	ERVS
	06-66-0500			|-- NO SCBA Brackets in Commercial Cab Seats	1	ERVS
20	04-00-4500			|-- Full Drive Line Modification/Pump Mounting {Non PTO driven pumps}	1	ERVS
	04-00-4600		>	|-- Drill Frame for Body Installation- DO NOT DELETE< REQUIRED LINE ITEM-READ NOTE	1	ERVS
20	06-25-0000			|-- Horizontal Exhaust Extension, Commercial	1	ERVS
20	06-26-0105			|-- Exhaust Heat Shield, Front Compartment	1	ERVS
	04-11-2100		>	|-- Battery Switch (Chassis Provided)	1	ERVS
20	04-11-3013			|-- Relocate Three (3) Commercial Chassis Batteries to Pump House	1	ERVS
21	04-11-9000			|-- Auto Throttle Programming	1	ERVS
	04-12-1500		>	|-- Back up alarm (Chassis Provided)	1	ERVS
21	04-18-1000		>	|-- Hazard Light (In-Cab)	1	ERVS
	04-18-2999			|-- NO Headlight Flasher	1	ERVS
	04-20-0300			|-- NO Cab Exterior Spotlights	1	ERVS
	04-22-0010		>	|-- CAB INTERIOR ACCESSORIES (COMMERCIAL CHASSIS), Pumper/Tanker/Rescue	1	ERVS
21	04-10-3625		>	|-- Deluxe Console w/ Binder Storage (Kenworth/Peterbilt)	1	ERVS
21	04-10-1020			|-- Rocker Switch Panel, Commercial, Pumper, Tanker, Rescue	1	ERVS
22	04-10-4100		>	|-- Paint Finish- Chassis Equivalent (Easy Clean/Superliner/Zolatone)	1	ERVS
	04-20-0005			|-- NO Handheld Spotlights	1	ERVS
	04-21-0005			|-- NO Map Light	1	ERVS
	04-50-0025			|-- *ELECTRICAL/AIR CHARGING SYSTEM PACKAGE, COMMERCIAL CHASSIS*	1	ERVS
22	04-50-0226		>	|-- Kussmaul Auto Charge LPC 40, Commercial Cab	1	ERVS
22	04-51-0110		>	|-- Battery Conditioner Display -Driver Side Step	1	ERVS
22	04-52-0010			|-- Auto Eject Shoreline-20 Amp Super	1	ERVS
22	04-54-0020		>	|-- Shoreline Connection Installed -Driver Side Step	1	ERVS
22	04-54-0105			|-- Shoreline connected to battery charger	1	ERVS
22	04-54-0205			|-- Inlet Color - Red	1	ERVS
	04-55-0100			|-- NO Additional Air Charging System Provided (Can select Chassis Provided option)	1	ERVS
	04-56-0105			|-- NO Air shoreline commercial	1	ERVS
22	04-58-0115		>	|-- 12" Bumper Extension-Order with Commercial Cabs when applicable	1	ERVS
23	04-58-0210			|-- Bumper Apron, 3/16" Embossed Aluminum Diamond Plate	1	ERVS
	04-58-0305			|-- NO Front Bumper Compartment Center	1	ERVS
	04-58-0310			|-- NO Front Bumper Compartment LH	1	ERVS
	04-58-0315			|-- NO Front Bumper Compartment RH	1	ERVS
23	04-61-0405		>	|-- Bumper Guide Poles	1	ERVS
	04-64-0015			|-- SIREN CONTROL HEAD-COMMERCIAL CHASSIS	1	ERVS
23	04-64-4000			|-- Whelen - #295SLSA1	1	ERVS

PG	PART NO	S	DESCRIPTION	QTY	ID
	04-65-0010		|-- SIREN SPEAKER, COMMERCIAL CHASSIS	1	ERVS
23	04-65-0149	>	|-- (1) Siren Speaker - Whelen SA315P	1	ERVS
23	04-65-0600		|-- installed IN bumper - Far Outboard Left	1	ERVS
	04-67-0060	>	|-- Mechanical Siren, (COMMERCIAL CHASSIS)	1	ERVS
23	04-67-0105		|-- Federal Q2B Siren w/Chrome Grille-Recess Mount -may req bumper extension	1	ERVS
24	04-69-0200		|-- Siren Recess Mount in bumper, RH Center	1	ERVS
	04-69-0900		|-- NO Mechanical Siren Guards	1	ERVS
	04-69-1000		|-- NO Polished Aluminum Extension/Housing (Commercial Cabs only)	1	ERVS
24	04-70-0015		|-- Siren Activation- Foot Switch Actuation, One Each Side & Rocker Switch	1	ERVS
	04-80-0100		|-- NO Fire Bell	1	ERVS
	04-85-0010		|-- AIR HORNS, COMMERCIAL CHASSIS	1	ERVS
24	04-85-0255		|-- Air Horns, (2) 24.5" Hadley E-Tone commercial	1	ERVS
24	04-85-0300		|-- (2) Installed on Hood-1 each side	1	ERVS
24	04-85-1017		|-- Lanyard Actuation - LH & RH	1	ERVS
	04-85-2000		|-- NO Air horn bell shields	2	ERVS
24	04-85-9000		|-- Pressure Protection Valve (DELETE if horns ordered with commercial chassis)	1	ERVS
24	04-87-0700	<	|-- Chassis Required Labeling & Miscellaneous Options, English, commercial cab Where applicable, style/brand of labels to match call out in plumbing section	1	ERVS
25	04-87-5000		|-- Apparatus Information Label-English	1	ERVS
25	04-87-6000		|-- Cab Helmet Warning Label-English	1	ERVS
	04-92-0200		|-- Tire Pressure Observation System- Commercial Chassis	1	ERVS
25	04-92-1162	>	|-- Tire Pressure Monitoring System with LED indicator - RealWheels	1	ERVS
26	05-01-0000		|-- Retro-Reflective Striping on Inside of Door Panels (2 Door)	1	ERVS
	05-02-0200		|-- Vehicle Data Recorder & Seat Belts Commercial Chassis	1	ERVS
	05-02-2000		|-- Weldon Vehicle Data Recorder	1	ERVS
26	05-02-2100		|-- Weldon VDR Model 6444-0000-00	1	ERVS
	05-10-1000	>	|-- ESC Brakes stability control system - (SEE ENG NOTE) - (Chassis Provided)	1	ERVS
	06-22-1200		|-- NO Air Tank Drain Cables - (extended)	1	ERVS
	06-46-0000		|-- NO Cab Back Overlay- Top Mount Pump Control, suggest adding option	1	ERVS
26	06-92-3000		|-- Commercial Chassis Cab finish from factory- NO REPAINT OPT AVAIL	1	ERVS
26	28-25-1005	>	|-- Heat Exchanger (100 % SPARTAN PROVIDED, CHECK FOR CHASSIS OPT)	1	ERVS
27	70-20-1100	>	|-- (Qty) Engine Compartment Lights, 12 Volt-LED Weldon	1	ERVS
27	70-36-0125		|-- TecNiq T44 series, 4" Rd LED Underchassis Lights 2dr Chassis	1	ERVS
27	70-36-0900		|-- Chassis Perimeter Light Activation-Open Door & Switch	1	ERVS
27	90-81-0520		|-- 2.5 lb Amerex ABC Extinguisher, Commercial Cab location	1	ERVS
	04-45-0050		NO Intercom System	1	ERVS
27	04-45-0505	>	Radio Antenna Mounting Base	1	ERVS
	04-48-0100		NO Tailboard to Cab Buzzer	1	ERVS
	04-86-0100		NO Auxiliary Cab Gauges Added by Body Builder	1	ERVS
	04-95-3050		NO Tire Chains	1	ERVS
	05-15-0105		Helmet Restraints-Commercial Default	1	ERVS
27	05-15-1100	>	|-- {QTY} Helmet Restraints -Ziamatic- Ship Loose	2	ERVS
	06-20-0002	>	NO Front Mud Flaps Added	1	ERVS
27	06-20-0095	< >	Mud flaps - Rear/Individual and Full Width with Lettering {Must Edit} Final layout and verbiage to be reviewed at pre-con.	1	ERVS
	06-43-0050		NO Wheel Covers	1	ERVS
28			**== Tanker Dryside - Pump Control - 10.220 06/06/22 ==**		**ERVS**
			PUMP COMPARTMENT/CONTROL		**ERVS**
28	26-10-2540		Pump Compartment Construction (Traditional), Tankers	1	ERVS
28	26-10-2910		|-- Vibra-Torq Pump Compartment Mounting, Pumpers/Tankers	1	ERVS
	26-13-0005		|-- NO Pump Compartment Heater	1	ERVS
	26-13-3045		|-- NO Heat Pan	1	ERVS
	26-13-7000		|-- NO Extreme Arctic Pump Enclosure/Insulation Package	1	ERVS

PG	PART NO	S	DESCRIPTION	QTY	ID
	26-15-0100		|-- NO Air Chuck Outlet/Inlet	1	ERVS
29	70-20-2100		|-- (1) Pump Compartment Work Light, (Weldon LED)	1	ERVS
29	26-10-3115	>	Left Side Operator's Panel- Tankers use w/ option 26-10-2540	1	ERVS
29	25-05-0010		|-- Open Door Warning for Hinged Pump Panels	1	ERVS
29	26-05-0125		|-- Valve Control-Innovative Controls- Side Mount (NEW)	1	ERVS
30	26-10-1005		|-- Panel Lights -SC-Brushed SST Shield- Spartan LED Strip- LH & RH high side+Weldon	1	ERVS
30	26-10-2005		|-- Pump Panel Light Activation- OK to Pump and Switch at operator's panel	1	ERVS
	26-10-7300		|-- NO Speedlays Provided Integral to Pump Compartment-Side Control-Tankers	1	ERVS
30	26-11-9205	>	|-- Pump Compt Fwd Wall Pump Access-No Overlay (for Side Control)	1	ERVS
30	26-12-0520	>	|-- Pump Compartment Width - 44"	1	ERVS
30	26-41-1000		|-- Right Side Panels Split - Removable (Black Laminol/Aluminum L& R sides) pumper	1	ERVS
	27-15-0000		|-- NO Storage Cavity/Mounting Prov in Pump Panel Area-Adding will increase PH width	1	ERVS
31	27-00-0005		|-- Running Board Details, Pumper/Tanker	1	ERVS
	27-10-0000		|-- HOSE WELL PACKAGES-Select this option	1	ERVS
31	27-10-0515		|-- Right Side Only- Floating Hosewell-Chamfered Corners - 8" Deep-Smooth Alum	1	ERVS
31	27-01-0105		|-- (2) Velcro Hold Down Straps	1	ERVS
31	27-07-0015		|-- Left - w/ 3/16" Embossed Aluminum Diamond Plate Overlay	1	ERVS
	27-12-0000		|-- NO Auxiliary Stepping provided (Slide Out/Pull Out/Fixed)-ADD for 4x4s	1	ERVS
31	27-11-9025		|-- Hosewell Matting-VersaFlex	1	ERVS
31	04-60-0290		|-- Matting-Black color	1	ERVS
	58-56-0000		|-- NO Running Board Lighting	1	ERVS
32	28-10-0590	>	|-- IC Apparatus Labeling - Deluxe Labels, Side/Rear Mount	1	ERVS
32	28-10-0710	>	|-- Color Specific Tag Inserts for the IC Labeling-see PDF	1	ERVS
	28-10-0750		|-- NO Diagrammatic Decal (pump operator's panel)	1	ERVS
	28-10-0800	>	|-- NO Mechanical Fasteners for labels, Deluxe	1	ERVS
	28-10-0910		|-- NO Trim Bezels for Controls & Discharge and Inlet Cutouts on Side Pump Panels	1	ERVS
	28-25-1700		|-- NO Radio Compartment	1	ERVS
32	28-15-0070		PSG - Fire Research Corporation "Pump Boss" 400 Series	1	ERVS
	09-02-0110		|-- Pump Panel Harness for PSG	1	ERVS
33	09-09-0210	>	|-- Intake Pressure Relief - TFT, All Pumps	1	ERVS
	09-09-5000	>	|-- NO Intake Plumbing Extension	1	ERVS
33	28-19-1700		|-- FRC Pump Boss Audible Alarm	1	ERVS
34	28-22-0040	>	CLASS 1 6" Master Gauges LFP-610-Liquid Filled	1	ERVS
34	28-22-0120		|-- -30 to 400 PSI Scale Reading-Gauge	1	ERVS
34	28-22-0405		|-- Black Markings on white gauge face	1	ERVS
	28-22-0500		|-- NO LED backlight	1	ERVS
34	28-25-0100		Pump Testing Ports	1	ERVS
	28-25-0150		Water Tank Gauge Package(s)	1	ERVS
34	28-50-0125	>	|-- IC SL Plus Tank Gauge - operator's panel	1	ERVS
	28-51-0000		|-- NO Chassis Provided/Installed Water Gauges (Custom Cabs ONLY N/A on Commercial)	1	ERVS
	28-51-0055		|-- Interior Chassis 'mini' Water Gauge	1	ERVS
35	28-51-1020	>	|-- (Qty 1) IC Gauge - mini - cab dash mount (additional/ no driver)	1	ERVS
35	28-52-0070		|-- Readouts - 1 mounted in center dash panel -custom cab option	1	ERVS
35	28-51-0105		|-- Auxiliary Water Gauge	1	ERVS
35	28-51-0425	>	|-- (Qty 2) Whelen PSTANK2 w/ Chrome Bezel (additional/with driver)	1	ERVS
35	28-52-0065		|-- Readouts - 1 each side-pump compartment	1	ERVS
35	28-51-0115		|-- Additional Water Gauge	1	ERVS
35	28-51-0225		|-- (Qty 1) Whelen PSTANK2 w/ Chrome Bezel (additional/with driver)	1	ERVS
36	28-52-0015		|-- Readout at rear of vehicle-left side	1	ERVS
	28-51-0120		|-- NO Extra Water Gauge	1	ERVS
36	28-25-0205	>	Air Horn Button-Red Push Button	1	ERVS
36	28-25-0310	>	Gauge - Chassis Fuel-(Commercial Chassis Only-IF APPLICABLE)	1	ERVS
	28-25-0500		NO Pump Hour Meter	1	ERVS
	28-25-1100		NO Innovative Control Switch Panel	1	ERVS
	28-25-1200		NO MC Pump Overheat Indicator	1	ERVS
36	54-50-3010		Pump Compartment Top - (NO DUNNAGE) 1/8" Embossed Aluminum Diamond Plate Surface	1	ERVS

PG	PART NO	S	DESCRIPTION	QTY	ID
	54-50-4000		NO Pump Compartment Upper Storage (Integral Pump Compartment)	1	ERVS
	54-50-4005		NO Pump Compartment Upper Storage (Above Pump Compartment)	1	ERVS
36			**== Tanker Dryside - Plumbing - 10.220 06/06/22 ==**		**ERVS**
			PUMP AND PLUMBING		**ERVS**
36	08-11-0020		Hale Pump, QMAX 1500 GPM (S/S) NO FOAM TO SIDE DISCHARGES	1	ERVS
36	08-11-0105		|-- QMAX Verbiage	1	ERVS
37	08-58-0100		|-- Pump Warranty Hale (5 year Parts/2 years Labor)	1	ERVS
38	09-13-0020		|-- Mechanical Seal	1	ERVS
38	09-14-0005		|-- Air Pump Shift	1	ERVS
38	09-14-0105		|-- Air pump shift Location - Best Fit	1	ERVS
	09-71-0010		|-- NO Manual Override for Pump Shift Provided	1	ERVS
38	09-38-0110		|-- Trident Automatic Air Primer w/ Override-Single Actuation	1	ERVS
39	09-38-0400		|-- Primer Control for AutoPrimer	1	ERVS
	10-10-0105	>	|-- 6" Inlets w/ Short Tubes	1	ERVS
39	10-10-1200		|-- 6" Inlet LEFT SIDE w/ Short Tube	1	ERVS
39	10-23-1000	>	|-- Electric MIV-E- Butterfly- Valve (Inside panel) (Hale Only)	1	ERVS
40	10-25-1000	>	|-- 6" Long Handled, Chrome Plated Cap-(Logo)	1	ERVS
40	10-10-1205		|-- 6" Inlet RIGHT SIDE w/ Short Tube	1	ERVS
40	10-23-1000	>	|-- Electric MIV-E- Butterfly- Valve (Inside panel) (Hale Only)	1	ERVS
40	10-25-1000	>	|-- 6" Long Handled, Chrome Plated Cap-(Logo)	1	ERVS
41	09-01-0700		Master Drain - Turn - Class 1 (Midship Mounted Pumps)	1	ERVS
41	09-40-0500	>	Hale TRV-120 (Thermal Relief Valve)	1	ERVS
41	09-70-0010		Pump Cooling/Circulation Line	1	ERVS
41	09-70-0420		(Qty 2) Pump Anodes - discharge and suction	1	ERVS
	09-70-0500	>	|-- NO Pump Anode(s)-Paint Finish	1	ERVS
	09-72-0000		NO Paint Pump	1	ERVS
	09-73-0000		NO Painting of Piping and Valves	1	ERVS
			INTAKES AND DISCHARGES		**ERVS**
42	12-10-1000		Plumbing Specs - Sch 10 Stainless Steel, -Pumper, Tanker- 3" manifold	1	ERVS
42	12-10-1250		|-- Plumbing Line Protection	1	ERVS
42	12-10-1335		|-- Manual Drains Innovative Controls Lift Handle- {New}	1	ERVS
	12-11-0010	>	NO Foam or CAFS System (Independent system of water pump), Pumper/Tanker	1	ERVS
	13-10-0005		NO PORTABLE/AUXILIARY PUMP	1	ERVS
	14-05-0000		NO Front Suction	1	ERVS
	14-07-0000	>	NO Rear Suction	1	ERVS
43	14-10-0105		2.5 - 3" Left Side Inlet	1	ERVS
43	14-31-1010		|-- Elkhart Valve - 2.5"	1	ERVS
43	14-35-0015		|-- Valve(s) Controlled -Directly /Suction Valve w/ Lever-	1	ERVS
43	14-45-0005		|-- 2.5" Side Inlet Piping	1	ERVS
43	14-55-0500		|-- Term: 2.5" NPT x 2.5" NST adapt w/Plug	1	ERVS
43	14-75-0310		|-- Side Inlet to be located in rearward position	1	ERVS
	14-10-0205		NO Auxiliary Left Side Inlet	1	ERVS
	14-10-0405		NO Right Side Inlet	1	ERVS
	14-10-0605		NO Auxiliary Right Side Inlet	1	ERVS
43	15-05-0210		(Qty 2) 2.5" - 3" Left Side Discharges	1	ERVS
43	16-31-0115		|-- Elkhart Rack & Sector Actuated Valve - 2 1/2"	2	ERVS
44	16-44-0510		|-- 2 1/2" Discharge Piping (side discharges)	2	ERVS
44	16-52-1100		|-- Term: 2.5" NST x 2.5"NST x 2.5"NST Chrome Elbow w/cap	2	ERVS
	16-61-0100	>	|-- Gauge specified later- OR use drop down for alternative	2	ERVS
	18-61-0000		|-- NO Foam/CAFS Supplied to Discharge	1	ERVS
	15-05-0400		NO Left Side Master Discharge {N/A on Side Mounts due to NFPA}	1	ERVS
44	15-05-0610		(Qty 1) 2.5" - 3" Right Side Discharge	1	ERVS
44	16-31-0105		|-- Elkhart Unibody EB25 Valve - 2 1/2"	1	ERVS
44	16-35-0010	>	|-- Valve(s) Controlled -Operator's Panel-	1	ERVS
44	16-44-0510		|-- 2 1/2" Discharge Piping (side discharges)	1	ERVS
44	16-52-1100		|-- Term: 2.5" NST x 2.5"NST x 2.5"NST Chrome Elbow w/cap	1	ERVS
	16-61-0100	>	|-- Gauge specified later- OR use drop down for alternative	1	ERVS
	18-61-0000		|-- NO Foam/CAFS Supplied to Discharge	1	ERVS
45	15-05-1110	>	(Qty 1) Side 3" - 4" Master Discharge-Right Side	1	ERVS
45	16-31-0210		|-- Elkhart Unibody EB30 Valve - 3"	1	ERVS

PG	PART NO	S		DESCRIPTION	QTY	ID
45	16-35-0010		>	|-- Valve(s) Controlled -Operator's Panel-	1	ERVS
45	16-44-1110			|-- 3" Discharge Piping (side mstr)	1	ERVS
45	16-53-5000			|-- Term: 3" NST x 5" swivel Storz Elbow w/cap	1	ERVS
	16-61-0100		>	|-- Gauge specified later- OR use drop down for alternative	1	ERVS
	18-61-0000			|-- NO Foam/CAFS Supplied to Discharge	1	ERVS
45	15-05-1610			2.5" - 3" Left Rear Discharge	1	ERVS
46	16-31-0210			|-- Elkhart Unibody EB30 Valve - 3"	1	ERVS
46	16-35-0010		>	|-- Valve(s) Controlled -Operator's Panel-	1	ERVS
46	16-44-1210		>	|-- 3" Discharge Plumbing (rear discharges)	1	ERVS
46	16-55-1400			|-- Term: 3" NST x 2.5" NST Elbow w/cap	1	ERVS
	16-61-0100		>	|-- Gauge specified later- OR use drop down for alternative	1	ERVS
	18-61-0000			|-- NO Foam/CAFS Supplied to Discharge	1	ERVS
	15-05-1705			NO Auxiliary Left Rear Discharge	1	ERVS
	15-05-2005			NO Right Rear Discharge	1	ERVS
	15-05-2205			NO Auxiliary Right Rear Discharge	1	ERVS
	15-05-3205			NO Large Diameter Center Position Rear Discharge	1	ERVS
	15-05-3305			NO Large Diameter Right Rear Discharge	1	ERVS
	15-05-3405			NO Large Diameter Left Rear Discharge	1	ERVS
				CROSSLAYS - REVIEW APPLICATION- DO NOT USE W/ UNDERBODY PUMP COMPTS		**ERVS**
46	16-20-0030		>	CROSSLAY AREA (Use Drop Downs For Available Options) Pumper/Tanker	1	ERVS
46	16-20-0020		>	|-- Minimum 25"-30" Deep/Single Stack Crosslay Width, with chiksan terminations	1	ERVS
47	16-20-0105			|-- 3/16" Fixed Crosslay Divider-With NO Hand Cutouts-DA finish	1	ERVS
	16-20-0150			|-- NO Turtle Tile Flooring - Crosslay	1	ERVS
47	16-20-0205		>	|-- {Qty} Crosslay - 1.75"-200'	2	ERVS
47	16-31-0005			|-- Elkhart Unibody EB20 Valve - 2"	2	ERVS
47	16-35-0010		>	|-- Valve(s) Controlled -Operator's Panel-	2	ERVS
47	16-44-0110			|-- 2" Discharge Plumbing (x-lays, speedlays, side body preconnects)	2	ERVS
47	16-50-1000			|-- Term: 2" NPT x 1.5" NST Brass Chiksan (no cap)	2	ERVS
	16-61-0100		>	|-- Gauge specified later- OR use drop down for alternative	2	ERVS
	18-61-0000			|-- NO Foam/CAFS Supplied to Discharge	2	ERVS
	16-20-0400		>	|-- NO Crosslay for 2.50"	1	ERVS
	16-20-1600		>	|-- NO Deadlay for 1.75"	1	ERVS
	16-20-1700		>	|-- NO Deadlay for 2.5"	1	ERVS
47	16-64-0010		>	|-- Brushed Stainless Steel Trim Around Crosslay Opening (NO rollers)	1	ERVS
48	16-65-0070			|-- Crosslay HB Cover-Top & Sides (D&S 22oz Hypalon) (Velcro/cord sides/extrusion)	1	ERVS
48	16-66-0110			|-- Crosslay Top/Side Covers to be Black	1	ERVS
	16-67-0100			|-- NO Crosslay Rollers	1	ERVS
48	78-00-0110	S		|-- (Qty 1) LED Firetech WL2000	1	ERVS
				LED CROSSLAY HOSE BED FLOOD LIGHT		
				There shall be one (1) FireTech Model WL2000 installed atthe rear area of the crosslays to provide the NFPA required lighting. Light to be activated by work light switch in cab.		
48	78-00-0210			|-- Crosslay Light Activation-Cab Switch/Park Brake	1	ERVS
				SPEEDLAYS/PRE-CONNECTS		**ERVS**
	16-20-1000			NO Speedlays Integral to Pump Compartment (MATCH selection in pump control)	1	ERVS
	16-20-1020			NO Speedlay/At Walkway Area (For Top Mount Applications Only w/ Walkway)	1	ERVS
	16-21-0010			Pre-Connects. Pumpers/Tanker	1	ERVS
	16-21-0050			|-- NO 1.5" Left Side Rear Pre-Connect	1	ERVS
48	16-21-0400			|-- (1) Pre-Connect - 2 1/2" (left side) pumpers/tanker	1	ERVS
48	16-31-0105			|-- Elkhart Unibody EB25 Valve - 2 1/2"	1	ERVS
48	16-35-0010		>	|-- Valve(s) Controlled -Operator's Panel-	1	ERVS
49	16-44-0810			|-- 2 1/2" Discharge Plumbing (2 1/2" pre-connects)	1	ERVS

PG	PART NO	S	DESCRIPTION	QTY	ID
49	16-50-4000		|-- Term: 2.5" NPT x 2.5" NST (no cap)	1	ERVS
49	16-55-2100	>	|-- Pre connect to Terminate left side, 8" above the hose bed floor	1	ERVS
	16-61-0100	>	|-- Gauge specified later- OR use drop down for alternative	1	ERVS
	18-61-0000		|-- NO Foam/CAFS Supplied to Discharge	1	ERVS
	16-21-0060		|-- NO 3" Left Side Rear Pre-Connect	1	ERVS
	16-21-0070		|-- NO 1.5" Right Side Rear Pre-Connect	1	ERVS
	16-21-0075		|-- NO 2.5" Right Side Rear Pre-Connect	1	ERVS
	16-21-0080		|-- NO 3" Right Side Rear Pre-Connect	1	ERVS
			SPECIALTY DISCHARGES		**ERVS**
	16-22-0040	>	DELUGE & ACCESSORIES, Dryside and Wetside Tankers	1	ERVS
49	16-22-0140	>	|-- (1) Deluge Waterway- (Dryside and Wetside Tanker)	1	ERVS
49	16-31-0230		|-- Elkhart Electrically Actuated Valve - 3"	1	ERVS
49	20-38-0100	>	|-- Elkhart Unibody Electric APEX 100 Controller - (No Pressure Reading)	1	ERVS
49	16-44-1540	>	|-- 3" Discharge Piping (deluge) -Dryside & Wetside Tankers	1	ERVS
50	16-79-0010	>	|-- Deluge-locate pipe center location, above pump	1	ERVS
50	16-82-0037	>	|-- Monitor Elkhart Cobra EXM2 #7200 Electric-w/man override, & position sensor	1	ERVS
50	16-82-1010	>	|-- Nozzle - Elkhart X-Stream SM-1250E	1	ERVS
50	16-82-1710		|-- Controller, Handheld, Elkhart EXM	1	ERVS
50	16-83-2800		|-- Controller Mounting Bracket Location - L1 compartment	1	ERVS
	16-82-1800		|-- NO Modules	1	ERVS
50	16-82-9005	>	|-- Elkhart Extender	1	ERVS
	16-61-0100	>	|-- Gauge specified later- OR use drop down for alternative	1	ERVS
	18-61-0005		|-- NO Foam/Supplied to Discharge	1	ERVS
	16-23-0000		NO Front Bumper Discharge - Chiksan/Bulkhead/Crosslay -	1	ERVS
50	16-24-0010		Water Washdown System (pumper/tanker)	1	ERVS
51	16-24-0100		|-- Location - Left Side Pump Panel	1	ERVS
	16-24-5000		NO Front Bumper Spray Nozzles	1	ERVS
	16-29-0100		BOOSTER REEL, Pumper/Dryside Tanker	1	ERVS
	16-88-0900	>	|-- BOOSTER REEL CAPACITY, DIMENSIONS AND DETAILS-SEE PDF	1	ERVS
51	16-88-1005		|-- REEL, std electric w/capacity to handle 1" I.D. hose	1	ERVS
51	16-88-5050		|-- (1) length 175' of hose - 175 ft/800 psi	1	ERVS
51	16-89-1005		|-- Reel to be (Non polished aluminum)	1	ERVS
51	16-89-2010	>	|-- 1.5" Elkhart Valve (UPGRADE TO 2" WITH FOAM/CAFS)	1	ERVS
51	16-91-1000		|-- Rewind switch push button - adjacent to reel	1	ERVS
52	16-90-0430		|-- Reel mounted in rear with enclosure -BELOW dump chute- Tanker	1	ERVS
52	16-92-0160		|-- Bell Rollers on each side	1	ERVS
52	16-93-0010		|-- Hose reel blow out system	1	ERVS
52	16-93-0100		|-- NO Gauge for Booster Reel (IF ADD GAUGE, MATCH THE DISCHARGE GAUGE PICK)	1	ERVS
	16-95-0100		|-- NO Nozzle	1	ERVS
	18-61-0000		|-- NO Foam/CAFS Supplied to Discharge	1	ERVS
	16-29-0010		NO Auxiliary Booster Reel- (NON front bumper locations)	1	ERVS
	16-29-0015		NO Booster Reel-Front Bumper Compartment (REQ APPROVAL)	1	ERVS
			GAUGES		**ERVS**
	16-60-0010		DISCHARGE GAUGES (USE INDIV PKG WITH EACH DISCHARGE FOR OPTION UPGRADES)	1	ERVS
52	16-60-0500	>	|-- {Qty} Innovative Controls TC 2.50 inch gauge	9	ERVS
53	16-62-0100		|-- 0-400 PSI Scale Reading-Gauge	9	ERVS
53	16-62-0400		|-- Black Markings on white gauge face	9	ERVS
	16-62-0500		|-- NO LED backlight	9	ERVS
53	16-62-0805		|-- Innovative Controls Bezels for Gauges	9	ERVS
	16-60-5000		NO GAUGE HEATERS	1	ERVS
			TANK TO PUMP/REFILL		**ERVS**
53	20-00-0010		(Qty 1) Tank to Pump Line - SST Schedule 10	1	ERVS
53	20-05-0100		|-- Integral Tank to Pump Check Valve	1	ERVS
53	20-26-0315		|-- Akron 8000 Series Valve - 3", Tank to Pump	1	ERVS
54	20-35-0010	>	|-- Valve(s) Controlled at Operator's Panel	1	ERVS

PG	PART NO	S		DESCRIPTION	QTY	ID
54	20-10-0110			(Qty 1) 2" Tank Re-fill Line	1	ERVS
54	20-26-0110			|-- Akron 8000 Series Valve - 2"	1	ERVS
54	20-35-0010		>	|-- Valve(s) Controlled at Operator's Panel	1	ERVS
54	20-15-0115			(Qty 2) Rear Direct Tank Fills-1 each side at rear, Pumpers/Wetside & Dryside	1	ERVS
54	20-26-0310			|-- Akron 8000 Series Valve - 3"	2	ERVS
54	20-35-0015		>	|-- Valve(s) Controlled Directly at Valve Location w/ Lever	2	ERVS
54	20-45-0210			|-- 3" Piping, Rear Direct Tank Fill	2	ERVS
	14-50-0050			|-- ****NO Exposed Rear Suction Inlet/Intake Pipe	2	ERVS
54	20-50-1100	S		|-- DTF Terminate w/ 3" storz and Cap	2	ERVS
				DIRECT TANK FILL TERMINATION		
				The direct tank fill shall terminate with a 3.00-inch Storz 30-degree elbow fitting and cap.		
54	20-55-0120			|-- Two (2) Fills located, 1 left 1 right vertical body panels	1	ERVS
	20-16-0010			NO Auxiliary Rear Direct Tank Fill Provided- Tankers	1	ERVS
	20-20-0010			NO Side Direct Tank Fill Provided	1	ERVS
55				**== Tanker Dryside - Body - 10.220 06/06/22 ==**		**ERVS**
				BODY CONSTRUCTION		**ERVS**
55	30-11-1050			Extruded .125 Aluminum Body Material Construction, Dryside Tanker	1	ERVS
57	30-12-5000			|-- Sikkens Painting/Finish Specifications - Aluminum/Pumper/Tanker	1	ERVS
58	30-12-6000			|-- Body Paint - Single -	1	ERVS
58	30-12-7000			|-- Body Paint color to be (Specify)	1	ERVS
58	30-12-6065		>	|-- Compt. Superliner Finish, Alum -Pumper/Dryside Tanker	1	ERVS
58	30-12-6540			|-- Superliner Medium Gray Color	1	ERVS
58	88-20-1000		>	|-- Undercoating - Body Only-underside of body only	1	ERVS
59	30-12-5500			|-- 10 Year Structural Body Warranty, Aluminum (Generic Specs)	1	ERVS
59	30-12-5850			|-- Paint Warranty - 10 year Prorated, Aluminum (Generic Specs)	1	ERVS
59	54-50-1045		>	|-- Diamond Plate front overlays and raw Alum rear overlays (p) {MATCH BODY}	1	ERVS
59	54-50-2100			|-- Front Vertical Overlay Corner Trim -1/8" Aluminum Diamond Plate	1	ERVS
59	54-50-2200			|-- Rear Vertical Overlay Corner Trim - 1/8" Aluminum Diamond Plate	1	ERVS
60	54-75-0300			|-- Catwalks- embossed aluminum diamond plate-Drysides (see drop down for avail opti	1	ERVS
60	30-20-1000			Vibra-Torq Body Mounting, Pumper, Tanker	1	ERVS
60	30-30-1000			99" Wide Body	1	ERVS
	30-31-0100			NO Compartment Drains (REQ FOR ULC, ADD BY DROP DOWN)	1	ERVS
60	30-31-5000			Compartment Filter Vent System	1	ERVS
	30-31-5005			NO Power Vent	1	ERVS
	31-99-9990			BODY COMPARTMENT DIM GUIDELINES-SEE PDF	1	ERVS
	31-99-9993			TANKER BODY COMPARTMENT MATRIX-SEE PDF-EXCEL ON SMT FOR USE-USE IT!!!	1	ERVS
	31-99-9994			REAR TAILBOARD DIM GUIDELINES-SEE PDF (Pumpers/Tanker)	1	ERVS
60	34-35-0120			Tandem Axle Dry Tanker Body, High Left & High Right (2000+ gal)	1	ERVS
61	34-40-2500		>	|-- 2090 Tanker Body, Tandem Axle, up to 3000 gal, 4 compts ea side	1	ERVS
63	34-42-0015			|-- Non Locking Flush Fitting Hinged Doors - High Sides-Mat'l matches body	1	ERVS
64	34-42-0180			|-- Doors to be Aluminum	1	ERVS
64	37-95-0010			|-- Interior Door Liner- Aluminum-DA finish (range a)	1	ERVS
64	37-96-0010			|-- Door Open Switch/Warning Light - Flush Doors	1	ERVS
	37-33-0000			|-- NO Rear/Lower Utility Compartment	1	ERVS
64	37-98-0010			|-- Brushed Stainless Steel Sill Plates	1	ERVS
	38-05-0010			|-- Compartment Lighting, Pumper/Tanker	1	ERVS
64	70-30-1000		>	|-- ROM LED Strip Lighting installed {DLR: SELECT COMPT OPTIONS & QTY'S}	1	ERVS
64	70-30-1020		>	|-- (Qty) Over wheel Compts - (1) ROM Strip LED Light	4	ERVS
64	70-30-1040		>	|-- (Qty) Full Height Compts - (1) ROM Strip LED Light	4	ERVS
	70-30-8000			|-- NO Auxiliary Compartment Lighting-mounted across top/RU door protector	7	ERVS
	70-30-9000			|-- NO Door Liner Lighting-Requires Hinged Doors ONLY option	1	ERVS
	71-00-0010			|-- NO Under Shelf Lighting REQ's Shelving to be called out	1	ERVS
65	71-50-0100			|-- Compartment Lighting Activation - Battery, Ignition, Door Switch	1	ERVS

PG	PART NO	S	DESCRIPTION	QTY	ID
65	38-10-0130		|-- Rear Tailboard w/ Beaver Tail Fins-Angled Panels-Brushed finish	1	ERVS
65	38-11-0180		|-- Step - 16" Deep w/Extruded Stair Tread "Diamondback" Insert	1	ERVS
	38-15-0010	>	|-- NO Auxiliary Steps Below Rear Tailboard (may add for 4x4's-required)	1	ERVS
	38-17-0000		|-- NO Tailboard Hose Well Packages- Select 20" Tailboard	1	ERVS
	38-17-0100		|-- NO Tailboard Hose Trough Packages-Select 20" Tailboard	1	ERVS
	53-25-0010		|-- NO Rear Slide Out Platform-Dir. Below Body (NON SMART STEP STYLE)	1	ERVS
65	39-01-0045	>	|-- Wheel Wells, Tandem Axle, Tanker-STD Height wheel panels	1	ERVS
66	39-04-0020	>	|-- Tandem Axle Smart Storage -painted-Tanker/RM Pumper	1	ERVS
	39-05-0070	>	|-- NO Roll-Out Drawers for Wheel Well - {34"} HT Wheel Panels	1	ERVS
	39-05-0070	>	|-- NO Roll-Out Drawers for Wheel Well - {34"} HT Wheel Panels	1	ERVS
66	39-06-0005		|-- Provisions on the left side in front of the axle, Pumper/Tanker/Rescue	1	ERVS
66	39-07-0015	>	|-- Divided Storage Compartment-Horizontal divider	1	ERVS
66	39-06-0060		|-- Provisions on the left side between the axles, Tanker	1	ERVS
66	39-07-0090	>	|-- Tank Dump Valve and Chute provisions (tandem)	1	ERVS
66	39-06-0100	>	|-- Provisions on the left side behind the axle, Pumper/Tanker/Rescue	1	ERVS
66	39-07-0015	>	|-- Divided Storage Compartment-Horizontal divider	1	ERVS
66	39-06-0150	>	|-- Provisions on the right side in front of the axle, Pumper/Tanker/Rescue	1	ERVS
66	39-07-0015	>	|-- Divided Storage Compartment-Horizontal divider	1	ERVS
67	39-06-0210		|-- Provisions on the right side between the axles, Tanker	1	ERVS
67	39-07-0090	>	|-- Tank Dump Valve and Chute provisions (tandem)	1	ERVS
67	39-06-0250		|-- Provisions on the right side behind the axle, Pumper/Tanker/Rescue	1	ERVS
67	39-07-0015	>	|-- Divided Storage Compartment-Horizontal divider	1	ERVS
67	39-08-0025	>	|-- Smart Storage Door-Finish- "Painted Stainless"-Round Latches	1	ERVS
67	39-09-0015		|-- Door Open Switch/Warning Light - Smart Storage	1	ERVS
	56-10-0000		|-- NO Wheel Well Protection Flap-REQUIRES overwheel compartment call out	1	ERVS
67	39-15-0035	>	|-- Rear Fenderettes to be Polished Stainless (Tandem)	1	ERVS
	43-14-0005	>	|-- NO Upper Body Storage Compartments/Body Wall Adjustment - Tanker	1	ERVS
	43-24-0000		|-- NO Underbody Storage Compartments	1	ERVS
67	50-15-3005		|-- Hose bed Description, Dryside Tanker	1	ERVS
68	30-14-0005		|-- Hose bed Walls w/Brushed Stainless Steel Finish	1	ERVS
68	30-14-2000		|-- Rear Hose bed Corners Trimmed w/ Brushed SST	1	ERVS
68	30-14-5000	>	|-- Hose Bed Side Walls Cap w/ Brushed SST	1	ERVS
68	50-12-6000		|-- Walls to be 100" tall	1	ERVS
	50-30-0015		|-- Hose Bed Cover -Dryside Tanker	1	ERVS
68	50-31-0015		|-- Syntex Vinyl Coated Nylon - Elastic shock cord front & sides	1	ERVS
68	50-33-0110		|-- Cover to be Red	1	ERVS
68	50-34-0125		|-- Rear Hose Bed Restraint -Cargo Net	1	ERVS
69	50-34-0205		|-- Rear Flap to be Black	1	ERVS
69	78-05-3010		|-- Four (4) 48" Spartan LED Tube Lights, Hose Bed Walls	1	ERVS
69	78-10-1070		|-- (Mult) Hose bed Lights to Illuminate w/ Park Brake	1	ERVS
69	50-15-3305	>	|-- Dunnage Area in Hose bed (KEEP FOR LOW HOSE BED/GENERATOR/ETC)	1	ERVS
	50-15-3400		|-- NO Hose bed Dunnage Area Cover	1	ERVS
	70-31-3005		|-- NO Hose Bed Dunnage Compartment Lighting	1	ERVS
69	50-15-4015	>	|-- {Qty} Full Height Hose Bed Divider(s) w/hand cut-out(s) (Over 24" HT use Reinfor	2	ERVS
	50-15-6010		|-- NO Belly Cut(s) in Hose Bed Divider	2	ERVS
69	50-15-9E00	>	|-- Hose Load (Select Options for Qty/Size of Hose Load)-More Opts avail-opt/pkg ind	1	ERVS
69	50-16-0010		|-- *SELECT HOSE BAY 1* (BAY 1 IS FAR LEFT, GO L TO R)	1	ERVS
	50-20-0000		|-- 3" Hose	1	ERVS
69	50-20-0500		|-- 3" Hose-500 feet	1	ERVS
	50-29-0005	>	|-- NO AUX/ADDITIONAL Hose stored in top of bay above Primary hose	1	ERVS
69	50-16-0020		|-- *SELECT HOSE BAY 2* (BAYS GO L TO R)	1	ERVS
	50-22-0000		|-- 5" Hose	1	ERVS
69	50-22-1000		|-- 5" Hose-1000 feet	1	ERVS

PG	PART NO	S		DESCRIPTION	QTY	ID
	50-29-0005		>	|-- NO AUX/ADDITIONAL Hose stored in top of bay above Primary hose	1	ERVS
	50-16-0090			|-- NO SPECIFIED HOSE LOAD	1	ERVS
	50-16-0090			|-- NO SPECIFIED HOSE LOAD	1	ERVS
70	61-00-1850			|-- Pro Poly Tank - 3000 gal	1	ERVS
70	61-00-0005			|-- Pro Poly Tank Verbiage	1	ERVS
70	61-00-0050			|-- Pro Poly Tank Warranty (For bid specs)	1	ERVS
71	61-00-0120		>	|-- Fill Tower & Overflow 6" (1500 gal and greater)	1	ERVS
71	61-00-0195			|-- Additional 6" Tank Vent/Overflow - Tankers	1	ERVS
71	61-00-0200			|-- Fill Tower Location - Left Frt Hose bed	1	ERVS
71	61-00-0305		>	|-- Dual Tank Sump Verbiage (USE for 2 TTP Valves)	1	ERVS
71	61-00-0310			|-- Sump 3" Plug (no valve)	2	ERVS
72	61-00-0400			|-- Tank Outlets Verbiage	1	ERVS
	61-10-0005		>	|-- Rear Tank Dump Package	1	ERVS
72	61-10-0115			|-- Rear 10" Square Dump w/Electric Valve - (painted mild steel)	1	ERVS
72	61-10-0515			|-- Electric Control for valve - right rear & in cab-	1	ERVS
72	61-10-2900			|-- Dump Chute Controls/Cast Products Housing	1	ERVS
72	61-10-0605			|-- Rear Chute in B-1 compartment	1	ERVS
72	61-10-2305			|-- 18" Painted Steel Electric Telescoping Chute Ext	1	ERVS
73	61-10-4000			|-- Painted Dump Chute - Vendor Painted	1	ERVS
	61-10-0030		>	|-- Left & Right Side Tank Dump Package -Tanker Tandem Axle	1	ERVS
73	61-10-1620		>	|-- Left & Right 10" Dump btwn Tandems w/ Electric Valve - (painted mild steel)	1	ERVS
73	61-10-1315			|-- Electric Control for valve -adjacent to valve & cab-	2	ERVS
73	61-10-2900			|-- Dump Chute Controls/Cast Products Housing	2	ERVS
73	61-10-2005			|-- Diamond plate door for dump valve	2	ERVS
74	61-10-2305			|-- 18" Painted Steel Electric Telescoping Chute Ext	2	ERVS
74	61-10-4000			|-- Painted Dump Chute - Vendor Painted	1	ERVS
74	62-10-0105	S	>	|-- Left Side Equipment Mounting	1	ERVS

LEFT SIDE MOUNTING

There shall be provisions to mount equipment above the compartments on the left side of the apparatus.

Stainless steel trim shall be provided and installed where equipment may come in contact with painted surfaces.

74	62-10-0200			|-- Unistrut for Ladder Bracket Mounting	1	ERVS
74	62-35-6405			|-- Folding Ladder Mounts on Catwalk- Diamond Plate Hood/Latch	1	ERVS
74	62-35-6510			|-- Folding Ladder - Spartan Supplied Ladder	1	ERVS
74	90-13-0040		>	|-- Alco-Lite 10' Alum FL-10 attic	1	ERVS
75	62-38-0105			|-- (2) Pike Poles Metal Storage Tubes - Catwalk - Spartan Supplied Pike Poles	1	ERVS
75	90-21-0020			|-- Duo Safety (Qty) 8' w/Fiberglass Handle	1	ERVS
75	90-21-0015			|-- Duo Safety (Qty) 10' w/Fiberglass Handle	1	ERVS
75	62-10-0110		>	|-- ZICO QUIC Lift Electric Ladder Rack-LOW & INTERMEDIATE BODY SIDE-RS (300# Cap)	1	ERVS
75	62-10-2310	S		|-- Ladders - Right Side	1	ERVS

LADDER BRACKET LOCATION

The ladders shall be located on the right side of the apparatus body above the side compartments.

75	62-18-0000			|-- Ladder Rack Activation Switch - Black Paddle	1	ERVS
75	62-19-0100			|-- Ladder Rack Activation- Rear Right Side Switch	1	ERVS
76	62-35-0012			|-- Alco Lite Ladders for Wall Mnt- Spartan Supplied Ladders	1	ERVS
	62-35-2020			|-- Alco Lite Package-(1)-2 or 3 section ext / (1-2) -Roof	1	ERVS
76	90-10-0030		>	|-- Alco-Lite 35' Alum PEL 3-35 3 sect	1	ERVS
76	90-12-0060		>	|-- Alco-Lite 16' Alum PRL-16 roof	1	ERVS
	62-38-1010		>	|-- Hard Suction Hose Storage on Zico Rack	1	ERVS
76	66-02-0015	S	>	|-- (1) Suction Hose Carriers-6" x 15'-(1) Zico Ladder Rack	1	ERVS

ZICO LADDER RACK SUCTION HOSE STORAGE

Suction hose shall be stored on a ZICO formed carrier rack sized to

PG	PART NO	S		DESCRIPTION	QTY	ID
				hold 6.00 inch x 15.00 foot hose. The rack shall have two (2) Velcro hold-down straps, one (1) at each end, which shall secure the suction hose to the tray. One (1) carrier shall be mounted to the Zico ladder rack above the side compartments.		
76	66-08-0005	S		|-- (1) Suction Hose for Carrier-Spartan Provided-6" x 15' **SUCTION HOSE** The following suction hose shall be provided with the carrier.	1	ERVS
76	90-31-0120		>	|-- {Qty} 6" x 15' w/ lightweight cplg - Clear PVC	1	ERVS
	62-25-0060			|-- NO Auxiliary Ladder Storage-Compartment	1	ERVS
	65-00-0095			|-- Suction Hose Storage, Split Depth HL/HR Compartments-Dryside	1	ERVS
	66-00-0265			|-- Suction Hose Carriers, Split Depth HL/HR compartments, Dryside & Wetside	1	ERVS
76	66-02-0005	S	>	|-- (1) Suction Hose Carriers-6" x 15'-(1) LS Catwalk **SUCTION HOSE STORAGE** Suction hose shall be stored on a formed carrier rack sized to hold 6.00 inch x 15.00 foot hose. The rack shall have two (2) Velcro hold-down straps, one (1) at each end, which shall secure the suction hose to the tray. One (1) carrier shall be mounted to the catwalk above the left side compartments.	1	ERVS
76	66-02-9020			|-- Suction Hose Carrier - Anodized Aluminum	1	ERVS
76	66-08-0005	S		|-- (1) Suction Hose for Carrier-Spartan Provided-6" x 15' **SUCTION HOSE** The following suction hose shall be provided with the carrier.	1	ERVS
76	90-31-0120		>	|-- {Qty} 6" x 15' w/ lightweight cplg - Clear PVC	1	ERVS
	90-40-0100			|-- NO Strainer Provided	1	ERVS
	66-20-0010			|-- NO Folding Tank Storage-Enclosed Compartment	1	ERVS
76	52-13-0110		>	|-- Overwheel Partitions (Left Side/Right Side or Both) Tandem Axle	1	ERVS
	50-60-0005			NO Rescue Equipment Storage Compartments (Stokes, Backboards, Little Giant)	1	ERVS
77	51-05-0020			Vertical Unistrut (ALL) Body Compartments, Tanker (includes rear if provided)	1	ERVS
	51-06-0000			NO Horizontal Unistrut {DO NOT add if Spartan is prov. Wall Mount Boards}	1	ERVS
	52-13-1300		>	NO Vertical Side Compartment Dividers	1	ERVS
	52-14-0005		>	NO Adjustable Vertical Side Compartment Dividers	1	ERVS
77	52-15-0205		>	Turtle Tile Floor Protective Matting (All floors), Tankers	1	ERVS
77	52-15-0505			|-- Black Floor Matting	1	ERVS
	52-15-1000			|-- NO Tapered Edging	1	ERVS
				SHELVING		**ERVS**
	52-16-0004			Shelving and Roll Out Tray Packages, Pumpers/Dryside Tanker	1	ERVS
77	52-16-0020		>	|-- Shelving Package, Pumpers/Dryside Tanker {SEE PDF for Shelving Capacity.}	1	ERVS
77	52-16-0210		>	|-- {QTY} Full Width x Half Depth - Upper Shelf *ADD LOCATIONS W/ PKG OPT IND	2	ERVS
	52-17-0300			|-- NO Upper Shelf Depth Modifications-SELECT FOR WALL MNT TOOL BOARDS	2	ERVS
77	52-40-0105			|-- {Qty} L1 Compartment	1	ERVS
78	52-40-0205			|-- {Qty} R1 Compartment	1	ERVS
	52-16-0115			|-- NO AUX Upper Shelving in compartments (this includes overwheel compartments)	1	ERVS

PG	PART NO	S	DESCRIPTION	QTY	ID
78	52-16-0410	>	|-- {QTY} Full Width x Full Depth-Lower Shelf***ADD LOCATIONS W/ PKG OPT INDICATOR	1	ERVS
78	52-40-0120		|-- {Qty} L4 Compartment	1	ERVS
	52-16-0145		|-- NO AUX Lower Shelving in compartments	1	ERVS
	52-16-0160		|-- NO Rear Compartment (B-1) Shelving	1	ERVS
	52-16-0170		|-- NO Permanent Half Depth Shelving in compartments	1	ERVS
78	52-22-0020		|-- Roll-Out Tray Package- Pumpers/Dryside Tanker	1	ERVS
	52-22-0105		|-- NO Floor Mount Roll Out Trays	1	ERVS
	52-22-0110		|-- NO Auxiliary Floor Mount Roll Out Trays	1	ERVS
78	52-23-0405		|-- {Qty} Adj Mount Roll Out -Full Width-(Austin 300#/100% w/Front Drawer Release)	4	ERVS
78	52-40-0105		|-- {Qty} L1 Compartment	1	ERVS
78	52-40-0120		|-- {Qty} L4 Compartment	1	ERVS
78	52-40-0205		|-- {Qty} R1 Compartment	1	ERVS
78	52-40-0220		|-- {Qty} R4 Compartment	1	ERVS
	52-22-0210		|-- NO Auxiliary Adjustable Mount Roll Out Trays	1	ERVS
	52-22-0305		|-- NO Roll Out Tilt Trays (Recommend Full Depth Compartment Location)	1	ERVS
78	52-26-0505	>	|-- Turtle Tile Floor Protective Matting (Trays/Shelves), Pumpers/Tanker	1	ERVS
78	52-26-1220		|-- Black Matting	1	ERVS
	52-26-2000		|-- NO Tray/Shelf Finish applied (raw finish)	1	ERVS
	52-26-3000		|-- NO Tray Retro-Reflective Striping	1	ERVS
	52-26-4000		|-- NO Shelf Retro-Reflective Striping	1	ERVS
	52-39-0020		*TOOL BOARD PACKAGE*	1	ERVS
	52-39-0100		|-- NO Pull-Out Tool Board	1	ERVS
79	52-39-0225	>	|-- Adjustable Depth Swing-Out Tool Board -Pac-Trac w/DA Finish- (full depth only)	1	ERVS
79	52-39-1005		|-- Red- reflective striping on tool board	1	ERVS
	52-39-1300		|-- No Reflective Striping on Pac Tool Board Slats	1	ERVS
79	52-40-0110		|-- {Qty} L2 Compartment	1	ERVS
	52-39-0250		|-- NO Fixed Swing-Out Tool Board (half depth compartments only)	1	ERVS
79	52-39-0325	>	|-- Wall Mounted Tool Boards mounted to brackets - Pac-Trac w/DA Finish-	4	ERVS
	52-39-1300		|-- No Reflective Striping on Pac Tool Board Slats	4	ERVS
79	52-40-0105		|-- {Qty} L1 Compartment	1	ERVS
79	52-40-0110		|-- {Qty} L2 Compartment	1	ERVS
79	52-40-0115		|-- {Qty} L3 Compartment	1	ERVS
79	52-40-0120		|-- {Qty} L4 Compartment	1	ERVS
	52-41-1005		NO Removable Tool Box, for tools, cribbing, etc...	1	ERVS
	52-42-0010		NO Storage for Air Bags	1	ERVS
	52-85-0010		NO SCBA Air Bottle Rack	1	ERVS
	52-91-0005		NO SCBA Bracket Package	1	ERVS
			RUB RAILS		**ERVS**
	53-00-0100		RUB RAIL PACKAGE - Pumper/Tanker	1	ERVS
79	53-00-0110		|-- Side Rub Rails - Anodized Aluminum -	1	ERVS
	53-01-0100		|-- NO Rub Rail Striping	1	ERVS
	53-02-0010		|-- NO Rear Rub Rails	1	ERVS
			STEPS AND HANDRAILS		**ERVS**
80	53-15-0008	>	FOLDING STEPS, CPI Illuminated LED-Pumper/Dryside Tanker {DELETE IF NOT REQUIR	1	ERVS
	53-15-1110		|-- NO Right Forward Steps	1	ERVS
	53-15-1120		|-- NO Right Rear Step	1	ERVS
	53-15-1105		|-- NO Left Forward Steps	1	ERVS
80	53-15-1420	>	|-- Four (4) Left Rear Steps	1	ERVS
80	53-30-1210	<	|-- (1) 10" Handrails, knurled Alum/LED - above rear steps To be located at Precon	1	ERVS
80	53-31-0500		|-- Handrail Illumination Light Color (White/Clear)	1	ERVS
80	53-32-0005		|-- Illuminated Handrail Activation - Park Brake	1	ERVS
80	58-60-0005		|-- Step Light Activation - Park Brake	1	ERVS
	53-15-1605		|-- NO Left Back of Cab Folding Step-CUSTOM CAB ONLY OPT	1	ERVS

PG	PART NO	S	DESCRIPTION	QTY	ID
	53-15-1610		|-- NO Right Back of Cab Folding Step-CUSTOM CAB ONLY OPT	1	ERVS
80	53-20-0110	>	Bolt On Intermediate Rear Step -3/16" "Embossed" Aluminum Diamond Plate, Pumper	1	ERVS
81	53-20-0205		|-- Intermediate Rear Step -Located below Hose Bed & Handrail-high as possible	1	ERVS
81	58-50-0005		|-- (1) Step Lighting, Spartan LED Tube 9"	1	ERVS
81	58-60-0005		|-- Step Light Activation - Park Brake	1	ERVS
	53-21-0010		NO Rear Fixed Steps	1	ERVS
	53-22-0010		NO Rear/Side Access Ladder(s)	1	ERVS
	53-25-0015		NO Body Side Slide Out Platforms-Underbody Style	1	ERVS
81	53-30-1005		HANDRAILS -Knurled Alum/Illuminated LED - pumper/tanker/rescue	1	ERVS
81	53-30-1102		|-- (Set of 3 Rear) -Knurled Alum/Illuminated LED - w/ offset vertical stanchions	1	ERVS
81	53-31-0500		|-- Handrail Illumination Light Color (White/Clear)	1	ERVS
82	53-32-0005		|-- Illuminated Handrail Activation - Park Brake	1	ERVS
			MISCELLANEOUS		**ERVS**
82	56-58-0025		DUAL Tow Eyes Below Rear Body/Compt - 1 ea side (Black Color)	1	ERVS
	56-61-6010		NO Rear with Sides Rescue/Winch Receivers (USE THIS OPT FOR INTEGRAL REAR & SID	1	ERVS
	56-61-6015		NO Rear Trailer Hitch Provisions Provided (DO NOT specify rear winch receiver)	1	ERVS
	56-61-6020		NO Side Rescue/Winch Receiver -REAR OF AXLE (DOES NOT INC REAR)	1	ERVS
	56-61-6060		NO Front Rescue/Winch Receiver	1	ERVS
	84-20-0005		NO Hydraulic Hose Reel	1	ERVS
	84-45-0005		NO Utility Air Hose Reel	1	ERVS
82			**== Tanker Dryside - Electrical - 10.220 06/06/22 ==**		**ERVS**
			BODY 12V ELECTRICAL		**ERVS**
82	70-01-0060		Multiplex Body Low Voltage Electrical System, Tanker	1	ERVS
83	70-01-5005		|-- 4 Year Limited Multi-plexed Electrical Warranty, (Generic Specs)	1	ERVS
	70-02-0030		|-- Commercial Chassis being used (multiplexed body)	1	ERVS
	70-05-0415	>	|-- Rocker Switch Panels-Spartan Standard/Discretion (NO Specs attached)	1	ERVS
	70-05-0500		|-- NO TRANSLATION FOR SWITCHES (for export only to add when needed)	1	ERVS
	70-05-0600		|-- NO VFD Display	1	ERVS
83	70-10-0025	>	|-- Node (Horizontal Mount) Pumper	1	ERVS
83	70-10-0100		|-- Weldon Vista IV Node Interface/Display	1	ERVS
83	70-36-1900	>	Underbody Lights (4) - Pumphouse/Tailboard	1	ERVS
83	70-36-2280		|-- TecNiq T44 Series, 4" Rd LED Underbody Lights	4	ERVS
84	70-37-0020		|-- Underbody Perimeter Light Activation-Match Chassis Programming	1	ERVS
			WARNING LIGHTS/PACKAGES		**ERVS**
84	72-2A-0030		Whelen Upper Lighting Package (Commercial Chassis Defaults) Wetside & Dryside	1	ERVS
	72-2A-0125		|-- Upper Zone A-Whelen (Commercial Pkg Set As Default)	1	ERVS
84	72-2B-1200	>	|-- NFPA Edge Freedom IV LED 60" -F4N0QLED (no additions)	1	ERVS
84	75-02-1010		|-- Lightbar switched w/E-Master (No Secondary Switch)	1	ERVS
	72-2H-0030		|-- Upper Zone B&D Warning-Whelen, Commercial Chassis Options Are Default	1	ERVS
84	72-2H-0150		|-- Zone B&D Front Side of Body (2) Whelen M9 Series Super-LED, Chrome Bezels	1	ERVS
84	75-01-5005		|-- Side Warning Lights Standard Flash	1	ERVS
84	75-02-9000		|-- NO Low Intensity Flash Pattern	1	ERVS
84	75-03-0010		|-- Side Warning Lights are Red with Clear Lenses	1	ERVS
84	72-2K-0150		|-- Zone B&D Rear Side of Body (2) Whelen M9 Series Super-LED, Chrome Bezels	1	ERVS
85	75-01-5005		|-- Side Warning Lights Standard Flash	1	ERVS
85	75-02-9000		|-- NO Low Intensity Flash Pattern	1	ERVS
85	75-03-0010		|-- Side Warning Lights are Red with Clear Lenses	1	ERVS
	72-2K-5000		|-- NO Auxiliary Upper Zone B Warning	1	ERVS

PG	PART NO	S	DESCRIPTION	QTY	ID
	75-02-1200		|-- NO Upper Side Lights Switch	1	ERVS
	72-2M-0025		|-- Upper Zone C Warning-Whelen, Commercial Default	1	ERVS
85	72-2M-0145		|-- Zone C (2) L31H LED Beacons	1	ERVS
85	75-04-0010		|-- Rear Warning Lights are Red with Clear Lenses	1	ERVS
85	78-30-0010		|-- (2) Cast Aluminum Upper Zone C Light Stanchions	1	ERVS
	72-2M-1200		|-- NO Auxiliary Upper Zone C Warning-Whelen	1	ERVS
	72-2M-1300		|-- NO Auxiliary Mid Height Zone C Warning-Whelen	1	ERVS
85	75-02-1400		|-- Upper Rear Warning Lights switched w/E-Master (No Secondary Switch)	1	ERVS
85	74-2A-1015		Whelen Lower LED Lighting Package (KNOW REQUIREMENTS/QTYS), Commercial Chassis	1	ERVS
	74-2B-0008		|-- Lower Zone A Warning -Whelen, Commercial Chassis Options Default	1	ERVS
85	74-2B-0140		|-- Zone A - (2) Whelen M6 Series Super-LED, Chrome Bezels	1	ERVS
86	75-05-0007		|-- Front Warning Lights Standard Flash	1	ERVS
86	75-06-0000		|-- NO Low Intensity Flash Pattern	1	ERVS
86	75-10-0010		|-- Front Warning Lights are Red with Clear Lenses	1	ERVS
86	74-2B-9025		|-- Aux Zone A - (2) Whelen M6 Series Super-LED, Chrome Bezels	1	ERVS
86	75-05-0005		|-- Front Warning Lights Standard Flash (hundred series)	1	ERVS
86	75-06-0000		|-- NO Low Intensity Flash Pattern	1	ERVS
86	75-10-0010		|-- Front Warning Lights are Red with Clear Lenses	1	ERVS
86	75-18-0005		|-- Lower Front Warning Lights switched w/E-Master (No Secondary Switch)	1	ERVS
	74-2F-0020		|-- Lower Zone B&D Warning -Whelen, Commercial Chassis Opts Are Default	1	ERVS
86	74-2F-0318		|-- Zone B&D - (6) Whelen M6V Series Super-LED, Chrome Bezels	1	ERVS
86	75-05-0207		|-- Side Warning Lights Standard Flash	1	ERVS
86	75-06-0000		|-- NO Low Intensity Flash Pattern	1	ERVS
86	75-11-0005		|-- Side Warning Lights are Red with Red Lenses	1	ERVS
87	75-15-0205		|-- (6) Side Lights Located- Pumphouse/Center on Rear Wheel Panel/Rear Tailboard	1	ERVS
87	82-60-2500	>	|-- Body Side Scene light(s) switched with chassis side lights (stationary)	1	ERVS
	74-2F-5000		|-- NO Auxiliary Lower Zone B/D Warning	1	ERVS
87	74-6J-0010	>	|-- Lower Zones B&D Cast Aluminum Angled Light Housing (>13.5" tailboard req.)	1	ERVS
87	75-18-0105		|-- Lower Side Warning Lights Switched w/E-Master (No Secondary Switch)	1	ERVS
	74-2J-0008		|-- Lower Zone C Warning -Whelen, Commercial Chassis Options Are Default	1	ERVS
87	74-2J-0080		|-- Zone C - (2) Whelen M6 Series Super-LED, Chrome Bezels	1	ERVS
87	75-05-0407		|-- Rear Warning Lights Standard Flash	1	ERVS
87	75-06-0000		|-- NO Low Intensity Flash Pattern	1	ERVS
87	75-12-0010		|-- Rear Warning Lights are Red with Clear Lenses	1	ERVS
87	75-18-0205		|-- Lower Rear Warning Lights switched w/E-Master (No Secondary Switch)	1	ERVS
87	75-20-0330	>	|-- Whelen Super LED Brake/Tail/Turn & Back-Up Assembly, M6-Series	1	ERVS
88	75-20-0650		|-- Whelen M6 series 4 Position Vertical Housing, Chrome Plated	1	ERVS
88	75-20-1010		|-- Taillights with Clear Lenses	1	ERVS
88	75-21-0010		|-- Backup Lights to illuminate in reverse only	1	ERVS
			D.O.T. LIGHTS		**ERVS**
88	75-25-3010	>	TecNiq S17 RED DOT Lighting - (7 total LED) - center lights low at rear	1	ERVS
88	75-25-6000	>	|-- (1 per side) TecNiq Intermediate Amber Lighting (Req. for apparatus >30'	1	ERVS
88	75-25-9000		|-- Intermediate Turn Signals (mid turn, flash with turn signal)	1	ERVS
89	75-26-0010		|-- (2) Side Britax Marker Lights (Stalk Mount)	1	ERVS
	75-28-0000		|-- NO Auxiliary Side DOT lighting	1	ERVS
	75-30-0010		|-- NO Auxiliary Side Turn Signal	1	ERVS
	76-29-0005		NO Body Side Back Up Lights	1	ERVS
			REAR OPTICAL		**ERVS**
89	76-30-0020		Rear Directional Light Bar-Pumper, Dryside, Rescue	1	ERVS
89	76-30-2060		|-- Whelen TAM65 Super LED-Amber lights (36" 6 light)	1	ERVS

PG	PART NO	S		DESCRIPTION	QTY	ID
89	76-31-0010			|-- Whelen TACTL5 Control Head	1	ERVS
89	76-32-0000			|-- Control Head Mounted In Chassis Supplied Panel Cutout	1	ERVS
89	76-33-0025			|-- Light Shield/Embossed Aluminum-above rear door (compt or entry)	1	ERVS
	76-70-0005			|-- NO Side Directional Light Bar	1	ERVS
	77-00-0015			Camera System- Tankers	1	ERVS
	77-00-0070			|-- Spartan Provided Triple Camera System	1	ERVS
89	77-00-0620			|-- Zone Defense 7.0" Color Three Camera Kit -rear/sides	1	ERVS
89	77-01-4110			|-- Center Rear & (x2) High on Side Body cameras surface mount	1	ERVS
90	77-01-5005		>	|-- Camera Monitor Mounted in Driver Dash (custom ONLY)	1	ERVS
	77-01-5100			|-- NO AUX Camera Monitor/ Camera System	1	ERVS
	77-06-0000			NO Rear/Body Collision Avoidance/Sensor System	1	ERVS
	78-40-0200			NO 12-Volt Cigarette Lighter Style Outlet - 15 amp	1	ERVS
	78-40-0210			NO 12-Volt Power & Ground Studs - 40 amp	1	ERVS
90	78-40-0225			12V ST Blade Fuse Block, Blue Sea, 6 position, 40amp batt direct	1	ERVS
	78-40-0305		>	|-- Cab (NON EMS) Interior 12V Accessory Power	1	ERVS
90	78-40-0310			|-- (Qty) Accessory 12V Power located in chassis cab driver's side	1	ERVS
	78-40-0500			|-- NO EMS 12V Accessory Power	1	ERVS
	78-40-1000			|-- NO Body Interior 12V Accessory Power	1	ERVS
	78-40-0230			NO 12-Volt Dual USB 2.4A Receptacle (Batt Direct)	1	ERVS
	78-40-0240			NO 12-Volt Dual USB 2.4A Receptacle (On with Master Batt)	1	ERVS
				12 VOLT SCENE LIGHTS		**ERVS**
	78-44-0120			12V Scene Lighting Options - Dryside Tanker - SELECT LOCATIONS	1	ERVS
	78-45-0005		>	|-- NO 12 Volt Cab Side Stationary Scene Lights (Cust only-check SPARcon 1st)	1	ERVS
	78-45-0015		>	|-- NO 12 Volt Rear Of Cab Stationary Scene Lights (Cust cab only-check SPARcon 1st)	1	ERVS
90	78-50-0505			|-- (4) Stationary Scene lights located side of body two each side	1	ERVS
90	78-50-8010			|-- Side Scene lights-inboard of surface mount warning lights	1	ERVS
90	78-51-0250			|-- Whelen M9 LED Series Super-LED, Gradient Scene Light, Chrome Flange	4	ERVS
90	82-60-2500		>	|-- Body Side Scene light(s) switched with chassis side lights (stationary)	1	ERVS
90	78-50-0725		>	|-- (1) Stationary Scene light located back of body, center location (SEE ENG NOTE)	1	ERVS
90	78-51-0290	S	>	|-- Whelen Pioneer Summit Series S30MW	1	ERVS
				SCENE LIGHT MODEL Whelen Pioneer "Summit Series" 12v LED bracket mounted flood light model S30MW 30" long.		
91	82-60-3530			|-- Rear Scene light(s) switched on the rocker panel and reverse (stationary)	1	ERVS
91	78-50-0105			|-- (1) Brow Light located front of cab centered	1	ERVS
91	78-52-0225		>	|-- Whelen Pioneer Super-LED w/dual flood (PFH2) - White Housing (comm chassis)	1	ERVS
	78-52-1100		>	|-- NO Pioneer Flasher, w/multi flash patterns (PFLASH)	1	ERVS
91	82-60-0010			|-- Front Scene light(s) switched on the rocker panel	1	ERVS
	78-45-0045			|-- NO 12 Volt "TOP" Mount Telescoping Scene Lights	1	ERVS
	78-45-0060			|-- NO 12 Volt "SIDE" Mount Telescoping Scene Lights	1	ERVS
				GENERATOR		**ERVS**
	80-05-0005			NO Generator/NO Dealer Installed Inverter	1	ERVS
	80-80-0010			|-- NO Line Voltage Outlets (120V/Shorepower)	1	ERVS
				BODY HIGH VOLTAGE LIGHTS		**ERVS**
	83-00-0500			NO 12VDC or 120VAC Light Tower Package	1	ERVS
91				**== Tanker Dryside - Extras - 10.220 06/06/22 ==**		**ERVS**
				LETTERING AND STRIPING		**ERVS**

PG	PART NO	S	DESCRIPTION	QTY	ID
	88-50-0100		> =LETTERING & STRIPING / PDF=	1	ERVS
	88-50-0250		Striping-Reflective	1	ERVS
	88-50-0550		|-- Reflective Stripe - Spartan Supplied & Installed	1	ERVS
91	88-50-3060		|-- 3M Reflective Stripe - 1" x 6" x 1"	1	ERVS
91	88-52-0000		|-- One Color Stripe	1	ERVS
91	88-52-5040		> |-- Stripe to be Black	1	ERVS
91	88-52-3030		|-- Straight Line Stripe to Incorporate 'Hockey Stick' Pattern on Body	1	ERVS
	88-52-6000		|-- NO Compartment Border 1/2" Striping	1	ERVS
	88-52-7000		|-- NO Pinstripe Edging	1	ERVS
	88-52-8000		|-- NO Corner Scrolls	1	ERVS
92	88-53-2010		> Diamond Grade Retro-reflective Chevron Striping (REAR), Dryside Tanker	1	ERVS
	88-53-5000		|-- NO Chevron Striping On Front Bumper	1	ERVS
92	88-53-6050	S	|-- Chevron Striping to be (Specify)	1	ERVS
			CHEVRON COLOR		
			The retro-reflective chevron striping shall be red/black in color.		
	88-54-0100		Body Lettering	1	ERVS
92	88-54-7500		|-- 22k Sign Gold - Body/Cab - max 60 letters-3"	1	ERVS
92	88-54-7510		|-- 22k Sign Gold - Body/Cab - max 60 letters-6"	1	ERVS
	88-54-9910		|-- NO Additional Lettering-Body	1	ERVS
	88-55-0010		Decals	1	ERVS
92	88-55-0100		|-- Fire Department Installed Decals	1	ERVS
			EQUIPMENT AND EXTRAS		**ERVS**
92	88-78-0000		License Plate Mounting Options	1	ERVS
92	88-78-4050		|-- CPI Cast Aluminum License Plate Bracket (fully enclosed) w/ LED Light	1	ERVS
92	88-78-9010		|-- License Plate Bracket Location Right Side	1	ERVS
93	90-00-0000		EQUIPMENT, Pumper/Tanker	1	ERVS
93	90-03-1000		|-- 1 Set-Zico Folding Wheel Chocks, #SAC-44-E (WATCH MTS, USE SMRT STRG IF APPLY)	1	ERVS
93	90-03-1100		|-- (1-set) Zico Folding Wheel Chock -horiz mounting brckts-LF body - #SQCH-44-H	1	ERVS
	90-08-0005	>	|-- NO Auxiliary Ladders (Ladders called out in spec above)	1	ERVS
	90-20-0005		|-- NO Auxiliary Pike Poles (Pike Poles called out in spec above)	1	ERVS
	90-30-0005	>	|-- NO Hard Suction Hose (Suction Hose called out in spec above)	1	ERVS
	90-40-0005		|-- NO Strainers (Strainers called out in spec above)	1	ERVS
	90-60-0000		|-- Folding Tanks (Called out In Specs Above (If need more added, use Drop Down)	1	ERVS
	90-60-0010		|-- NO Folding Tank	1	ERVS
	90-80-0010		|-- Fire Extinguishers	1	ERVS
93	90-80-0110		|-- Fire Department Supplied Fire Extinguishers	1	ERVS
	91-10-0010		|-- Rechargeable Flashlights	1	ERVS
93	91-10-0030		|-- Fire Department Supplied Portable Hand Lights	1	ERVS
93	91-22-0010		|-- Flares	1	ERVS
93	91-22-0110		|-- Fire Department Supplied Flares	5	ERVS
93	91-23-0010		|-- Traffic Cones	1	ERVS
93	91-23-0120		|-- Fire Department Supplied Traffic Cones	5	ERVS
93	91-23-0200		|-- Traffic Vest	1	ERVS
93	91-23-0220		|-- Fire Department Supplied Traffic Vest	5	ERVS
93	91-24-0001		|-- AED	1	ERVS
93	91-24-0054		|-- Fire Department Supplied AED	1	ERVS
94	91-25-0001		|-- First Aid Kit	1	ERVS
94	91-25-0054		|-- Fire Department Supplied First Aid Kit	1	ERVS
94	91-26-0010		|-- Salvage Covers	1	ERVS
94	91-26-0120		|-- Fire Department Supplied Salvage Covers	1	ERVS
94	91-29-0010		|-- Axes	1	ERVS
94	91-29-0030		|-- Fire Department Supplied Axes	1	ERVS
94	91-35-0000		|-- Spanner Wrenches	1	ERVS
94	91-35-0054		|-- Fire Department Supplied Spanner & Hydrant Wrenches	1	ERVS
94	91-36-0000		|-- Nozzles	1	ERVS
94	91-36-0054		|-- Fire Department Supplied Nozzles	1	ERVS

PG	PART NO	S	DESCRIPTION	QTY	ID
94	91-40-0010		|-- Handheld Tools, Pumpers/Tanker/Rescues	1	ERVS
94	91-40-0100		|-- Claw Tool	1	ERVS
94	91-40-0110		|-- Fire Department Supplied Claw Tool	2	ERVS
94	91-40-0200		|-- Halligan Tool	1	ERVS
94	91-40-0210		|-- Fire Department Supplied Halligan Tool	1	ERVS
94	91-40-0300		|-- Crowbars	1	ERVS
94	91-40-0310		|-- Fire Department Supplied Crowbar	2	ERVS
94	91-40-0500		|-- Sledge Hammer	1	ERVS
95	91-40-0510		|-- Fire Department Supplied Sledge Hammer	1	ERVS
95	91-40-0615		|-- Rubber Mallet-Fire Department Supplied	1	ERVS
95	91-40-0700		|-- Shovels	1	ERVS
95	91-40-0710		|-- Fire Department Supplied Shovels	2	ERVS
95	91-40-0800		|-- Bolt Cutter	1	ERVS
95	91-40-0810		|-- Fire Department Supplied Bolt Cutter	1	ERVS
95	91-70-0000		|-- Supply Hose	1	ERVS
95	91-70-0054		|-- Fire Department Supplied Fire Hose	1	ERVS
95	92-01-0100		|-- Adaptors	1	ERVS
95	92-01-0154		|-- Fire Department Supplied Adaptors	1	ERVS
95	92-10-0100		|-- SCBA & Cylinders	1	ERVS
95	92-10-0154		|-- Fire Department Supplied SCBA	4	ERVS

== Tanker Dryside - Boiler Plate - 10.220 06/06/22 ==

INTENT OF SPECIFICATIONS

It shall be the intent of these specifications to provide a complete apparatus equipped as hereinafter and as specified. With a view to obtaining the best results and the most acceptable apparatus for service in the Department, these specifications cover only the general requirements as to the type of construction and tests to which the apparatus must conform, together with certain details as to finish, equipment and appliances with which the successful bidder shall conform. Minor details of construction and materials where not otherwise specified are left to the discretion of the contractor, who shall be solely responsible for the design and construction for all features. The manufacturer shall provide loose equipment only when specified by the customer. The (NFPA) 1901, Standard for Automotive Fire Apparatus, unless otherwise specified as requested by the customer in these specifications, shall prevail.

The apparatus must meet all NFPA, DOT, ICC, AE, SAE, UL, TRA, FMVSS and local state Motor Vehicle Requirements.

It is required that the apparatus be manufactured to current NFPA edition standards, all NFPA equipment (LOOSE EQUIPMENT) not specified in the specifications will not be provided by the contractor.

Bids shall only be considered from companies that have an established reputation in the field of fire apparatus construction that have been in business and construction for a minimum of twenty-five (25) years.

The bidder of the apparatus herein specified; shall be wholly owned (100%) and managed by a Company, Corporation, and/or Parent Company that is wholly based, and permanently resides in the United States of America.

The Company, Corporation, and/or Parent Company and all assets belonging to such; shall be wholly owned and managed (100%) by the entities specified above.

The bidder shall state the location of the manufacturing facility where the apparatus is to be built and the location of the parent company if a subsidiary of a manufacturer.

The bidder shall provide satisfactory evidence of their ability to construct the apparatus specified in the bidders manufacturing facilities.

The bidder's representation shall state the length of time representing the manufacturer of specified apparatus.

Due to the severe service requirements the department will impose on the apparatus as specified, each bidder shall provide a list of at least six (6) departments in which similar apparatus utilizing the brand of chassis proposed have been in service for over one year. This list shall include contact names and phone numbers.

Due to the importance of keeping this vital piece of firefighting apparatus in service with a minimum of downtime, the manufacturer shall maintain a network of service centers with factory-training personnel.

The bid shall be accompanied by a set of "Contractor's Specifications" consisting of a detailed description of the apparatus being furnished under this contract which conform. Computer runoff sheets are not acceptable as "Contractor's Specifications". Item compliance shall be indicated in the "Yes/No" column of each item by all Bidders. Note: Each bidder shall submit their bid in the same sequence as these specifications to allow the department to easily compare.

These specifications shall indicate size, type, model and make of all component parts and equipment.

QUALITY AND WORKMANSHIP

The design of the Apparatus shall embody the latest approved automotive engineering practices.

The workmanship must be of the highest quality in its respective field. Special consideration will be given to the following points: Accessibility of the various units, which require periodic maintenance, ease of operation (including both pumping and driving) and symmetrical proportions.

Construction shall be rugged and ample safety factors shall be provided to carry loads as specified and to meet both on and off road requirements and to speed conditions as set forth under "Performance tests and requirements".

Welding shall be employed in the assembly of the apparatus in a manner that will not prevent the ready removal of any component part for service or repair, with apparatus bodies of bolt together design not being acceptable.

All steel welding shall follow American Welding Society requirements for AWS D1.1:2012 Structural Welding Code for welding steel structural assemblies. All aluminum welding shall follow American Welding Society requirements for AWS D1.2/D1.2M:2003 Structural Welding Code for any type of structure made from aluminum structural alloys. All sheet metal welding shall follow American Welding Society AWS D9.1M/D9.1:2006 Structural Welding code for Arc/Braze requirements of non-structural materials. All pressure pipe welding shall follow American Society of Mechanical Engineers ASME IX/ ASME B31:2010 requirements to the qualification of procedures in welding and brazing, in accordance with the ASME Boiler and Pressure Vessel Code and the ASME B31 Code for Pressure Piping. Flux core arc welding to use alloy rods, type 7000, American Welding Society AWS standards A5.20-E70T1.

DELIVERY

The bidder shall provide the number of calendar days from the date the bid is awarded to the delivery of the completed unit.

A qualified delivery engineer representing the contractor shall deliver the apparatus and instruct the Fire

Department personnel in the proper operation, care and maintenance of the equipment delivered.

To ensure proper break-in of all components while still under warranty, the apparatus shall be delivered under its own power. The unit will remain insured by the apparatus manufacturer until the department accepts the unit.

PERFORMANCE TESTS AND REQUIREMENTS

A road test shall be conducted with the apparatus fully loaded to its estimated in-service weight and shall be capable of the following performance while on dry paved roads that are in good condition and for a continuous run of ten (10) miles or more, during which time the apparatus shall show no loss of power or overheating. The transmission drive shaft or shafts and rear axles shall run quietly and be free from abnormal vibration or noise throughout the operating range of the apparatus. The successful bidder shall furnish a Weight Certificate showing weights on front axle, rear axles and total weight for the completed apparatus at time of delivery.

A. The apparatus shall be capable of accelerating to 35 MPH (55 km/hr) from a standing start within 25 seconds on a level concrete highway without exceeding the maximum governed RPM of the engine.

B. The apparatus, fully loaded, shall be capable of obtaining a minimum top speed of 50 MPH (80 km/hr) on a level dry concrete highway with the engine not exceeding its governed RPM (fully loaded).

C. The service brakes shall be capable of stopping a fully loaded vehicle in 35ft (10.7 m) at 20 mph (32.2 km/hr) on a level concrete highway. The air brake system shall conform to Federal Motor Vehicle Safety Standards (FMVSS) 121.

D. The apparatus, when fully loaded, shall have not less than 25 percent or more than 50 percent of the weight on the front axle, and not less than 50 percent nor more than 75 percent on the rear axle.

E. From a steady pace of 15 mph, the vehicle will accelerate to a true speed of 35 mph within 15 seconds. This will be accomplished without moving gear selector.

F. The apparatus will be able to maintain a speed of at least 20 mph on any grade up to and including 6 percent.

G. The contractor shall have the Underwriter's Laboratories, LLC conduct the tests of the apparatus as in accordance with standard practices required by the Underwriter Laboratories, LLC (Guide for the Certification of Fire Department Pumper latest edition). A copy of all tests shall accompany the Apparatus. (For apparatus sold within Canadian ULC S515 latest revision shall prevail).

H. The contractor shall furnish copies of the Pump Manufacturer's Certification of hydrostatic test, the Engine Manufacturer current certified brake horsepower curve, and the Manufacturer's record of pumper construction details when delivered.

I. All fluid levels and applicable pressures will be brought to proper levels and noted prior to final delivery.

INFORMATION REQUIRED

The manufacturer shall supply at time of delivery, a complete operation and maintenance manual covering the completed apparatus as delivered.

A Fire Apparatus Safety Guide published by Fire Apparatus Manufacturer's Association shall be provided with the apparatus upon delivery. This manual includes essential safety information for fire fighters, fire chiefs, apparatus mechanics, and fire department safety officers. The guide is applicable to municipal, wildland, and airport firefighting apparatus manufactured on either custom or commercial chassis.

A permanent plate shall be mounted in the driver's compartment to specify the quantity and type of the following fluids used in the vehicle: Engine oil, engine coolant, and chassis transmission fluid, pump transmission lubrication fluid, pump primer fluid (if used) and drive axle lubrication fluid.

The manufacture shall supply the final certification of GVWR and GAWR on a nameplate affixed to the vehicle.

A permanent plate in the driver's compartment shall be installed, specifying the seating capacity of the enclosed cab.

Signs that state "OCCUPANTS MUST BE SEATED AND BELTED WHEN APPARATUS IS IN MOTION" shall be provided and will be visible from each seated position. An accident prevention sign shall be located at the rear step area of the apparatus. It shall warn all personnel that standing on the step while apparatus is in motion shall be prohibited.

A nameplate indicating the chassis transmission shift selector position to be used when pumping shall be provided in the driving compartment and located so that it can be easily read from the driver's position.

LIABILITY

The bidder, if their bid is accepted, shall defend any and all suits and assume all liability for the use of any patented device or article forming part of the apparatus or any appliance provided under the contract.

GENERAL CONSTRUCTION

The apparatus shall be designed with due consideration to distribution of load between the front and rear axles, so that all specified equipment, including filled water tank, a full complement of personnel and fire hose will be carried without injury to the apparatus. Weight balance and distribution shall be in accordance with the recommendations of the (NFPA) 1901, Standard for Automotive Fire Apparatus, documentation.

The apparatus shall be designed so that all recommended daily maintenance checks can be performed easily by

the operator without the need for hand tools. Apparatus components that interfere with repair or removal of other major components must be attached with fasteners (cap, screws, nuts, etc.) so that the components can be removed and installed with normal hand tools. These components must not be welded or otherwise permanently secured into place.

The GAWR and GVWR of the chassis shall be adequate to carry the fully equipped apparatus including all tanks filled, the specified hose load, unequipped personnel weight, ground ladders and a miscellaneous equipment allowance per NFPA criteria. It shall be the responsibility of the purchaser to provide the contractor with the weight of equipment to be carried if it is in excess of the allowance as set forth by NFPA.

The unequipped personnel weight shall be calculated at 250 lbs. per person times the maximum number of persons to ride on the apparatus.

The height of the fully loaded vehicle's center of gravity shall not exceed the chassis manufacturer's maximum limit.

The front to rear weight distribution of the fully loaded vehicle shall be within the limits set by the chassis manufacturer. The front axle loads shall not be less than the minimum axle loads specified by the chassis manufacturer, under full loads and all other loading conditions.

The difference in weight on the end of each axle, from side to side, when the vehicle is fully loaded and equipped shall not exceed 7 percent.

The apparatus shall be so designed that the various parts are readily accessible for lubrication, inspection, adjustment and repair.

Where special tools manufactured or designed by the contractor and are required to provide routine service on any component of the apparatus built or supplied by the contractor, such tools shall be provided with the apparatus.

EXCEPTIONS TO SPECIFICATIONS

The following specifications shall be strictly adhered to. Exceptions shall be allowed if they are equal to or superior to that as specified and providing, they are listed and entirely explained on a separate page entitled "Exceptions to Specifications". The exceptions list to refer to specification page number and paragraph.

Proposals taking total exception to specifications or total exception to certain parts of the specifications such as Electrical Systems, Chassis, Body or Pump, will not be accepted.

Prototype units will not be acceptable. Apparatus shall be inspected upon completion for compliance with specifications.

Deviations will not be tolerated and will be cause for rejection of Apparatus unless they were originally listed in bidder's proposal and accepted in writing by the department.

If the bidder takes an exception, on the exception page, the bidder must state an option price to bring their specifications into full compliance with the Department specifications.

Failure to provide this information shall be cause to reject the proposal as being non-responsive.-

Copied or run off sheets of these specifications shall be unacceptable, and the bid will be rejected no exceptions.

WARRANTY

Warranties applicable to the chassis and body (excluding vendor supplied components {engine, transmission, axles, etc.} which carry their own specific warranties) will be addressed by a single point warranty service provider approved by the manufacturer to perform service as necessary.

PURCHASER'S RIGHTS

The Purchaser reserves the right to accept or reject any or all bids as it deemed in their best interests.

BID/PROPOSAL DRAWINGS

For purposes of evaluation, the bidder shall provide a drawing illustrating, but not limited to, the overall dimensions, wheelbase, and overall length of the proposed apparatus and other specified equipment, shall be required to be included with the bidder's proposal package.

The drawings shall be large "D" size (minimum 24.00 inches x 36.00 inches).

Smaller size drawings, "similar to" drawings or general sales drawings, shall not be acceptable.

Failure to provide a bid evaluation drawing in accordance with these specifications shall be cause for rejection of the bid proposal.

PRE-CONSTRUCTION DRAWINGS

After the award of the bid, the contractor shall provide detailed colored engineering drawings including, but not limited to, the overall dimensions, wheelbase, and overall length of the proposed apparatus for use during the pre-construction conference.

The drawings shall include, but shall not be limited to the right, left, top, front and rear views of the apparatus.

In addition, a detailed engineering drawing of the pump operator's panel shall be provided prior to

manufacturing for fire department approval.

BID SECURITY

Each bidder must submit a bid bond or a cashier's check with his or her proposal for the amount of ten percent (10%) of the bid price of the proposal submitted.

PERFORMANCE BOND

A 100% Performance Bond shall be supplied within thirty days of bid award. The signatures of both buyer and bidder on the contract shall construe awarding of the bid. The prime apparatus builder shall provide the performance bond. Any bonds supplied by the dealer or representative shall not be acceptable.

TAG-ON ORDERS-COOPERATIVE PURCHASING

Other fire departments, metropolitan regions, or municipalities may purchase apparatus and equipment from same manufacture similar to the Apparatus and Equipment that is the subject of this Contract held by the same manufacture. The following terms shall apply to any such tag-on orders:

(a) Changes - Tag-on orders utilizing the same specification as the Apparatus and Equipment that is the subject of this Contract in order to provide favorable pricing and lead-times to other buyers due to having such specification fully engineered. Limited changes will be permitted. Such changes will be captured in the pre-construction meeting and the price of any tag-on unit adjusted accordingly.

(b) Term – Tag-on orders may be placed for a term of one year after the Effective Date of this Contract.

(c) Escalation - Manufacture reserves the right to adjust the price of any tag-on order if material costs escalate during the term of this Contract, changes in regulations become effective (for example EPA, NFPA or other), or the tag-on order would cross a model year.

(d) Acceptance – Manufacture holding the contract reserves the right to accept or reject any tag-on orders under this Contract.

FINITE ELEMENT ANALYSIS AND TESTING

Finite Element Analysis (FEA) shall be provided by the manufacturer.

Prototype bodies have been subjected to rigorous testing over varied terrains simulating different environmental conditions.

The purpose of such complex engineering methods of analysis shall be to ensure the longevity of the design by analyzing stress levels throughout the body and incorporating the structural supports wherever necessary.

There shall have been a minimum of three (3) different load cases (per DOT, FHWA, and TTMA recommended practice) applied and analyzed to properly display the different areas and levels of stresses that will be present under the various operating conditions of the apparatus.

In addition to the FEA analysis, the core product design shall be strain gauged instrumental to ensure validation of FEA results and "Real World" drive/apparatus driving conditions.

Analysis shall also have been conducted on the mounting system for the apparatus body and pump house. EXCEPTIONS TO THIS STATEMENT MAY BE CAUSE FOR IMMEDIATE REJECTION AND/OR BE CONSIDERED NON-COMPLIANT.

SUPPLIED INFORMATION & EXTRAS

The apparatus manufacturer shall supply two (2) hard copies of apparatus manuals with all manufactured apparatus.

The manuals shall include, but not be limited to: all component warranties, users' manuals and information for supplied products, apparatus engineering information including drawings and build prints, and whatever other pertinent information the manufacturer can supply to its customer regarding the said apparatus.

Included in the delivery of the unit, the manufacturer shall also include spare hardware and extra fasteners, paint for touch-up, information regarding washing and care procedures, as well as other recommendations for care and maintenance of the general apparatus.

The manufacturer shall also supply a manufacturer's record of apparatus construction details, including the following information:

- Owner name and address
- Apparatus manufacturer, model, and serial number
- Chassis make, model, and serial number
- GAWR of front and rear axles
- Front tire size and total rated capacity in kilograms
- Rear tire size and total rated capacity in kilograms
- Chassis weight distribution in kilograms with water (if applicable) and manufacturer mounted equipment (front and rear)
- Engine make, model, serial number, rated horsepower, related speed and no load governed speed
- Type of fuel and fuel tank capacity
- Electrical system voltage and alternator output in amps
- Battery make and model, capacity in CCA
- Paint numbers
- Weight documents from a certified scale showing actual loading on the front axle, rear axle(s), and

overall vehicle (with the water tank full (if applicable) but without personnel, equipment, and hose)
- Written load analysis and results of the electrical system performance tests
- Transmission make, model, and type
- Pump to drive through the transmission (yes or no)
- Engine to pump gear ratio and transmission gear ratio used
- Pump make and model, rated capacity in gallons per minute, serial number, and number of stages
- Pump manufacturer's certification of suction capability
- Pump manufacturer's certification of hydrostatic test
- Pump manufacturer's certification of inspection and test for the fire pump
- Copy of the apparatus manufacturer's approval for stationary pumping applications
- Pump transmission make, model and serial number
- Priming device type
- Type of pump pressure control system
- The engine manufacturer's certified brake horsepower curve for the engine furnished, showing the maximum no load governed speed
- Certification of the water tank capacity

ELECTRICAL SCHEMATICS

The apparatus manufacturer shall supply one (1) set(s) as-built wiring schematics, to include all line voltage schematics with each apparatus.

WARNING AND INFORMATION LABELS

All warning and informational labels (non-vendor specific) shall be provided in compliance with (NFPA) 1901, Standard for Automotive Fire Apparatus, and installed in the appropriate locations to alert the operator of potential hazards and operating instructions.

ON-LINE CUSTOMER INTERACTION

The manufacture shall provide the capability for online access through the manufacture's website. The customer shall be able to view digital photos of their apparatus in the specified phases of construction. The following phases will be captured and displayed on the manufacture's website:

1. Chassis when available at manufacturing facility
2. Body – Prior to Paint
3. Body – Painted
4. Pump and Plumbing
5. Assembly – 80% Complete

Due to the complex nature of fire apparatus and the importance of communication between the manufacture and customer, this line item is considered a critical requirement.

LIABILITY INSURANCE COVERAGE

In order to protect the department and its personnel, the bidder shall show proof that it has no less than $10 million in liability insurance in force. A certificate of coverage shall be included in the bid package. Failure to carry liability insurance of at least this amount or failure to include proof of coverage shall be cause to reject the bidder's proposal.

GENERAL WARRANTY

The manufacturer shall provide a two (2) year warranty from the date of delivery.

In the case of a commercial chassis being used, the warranty on the chassis, engine, transmission, tires, storage batteries, generators, electrical lamps and other devices subject to deterioration is limited to the warranty of the manufacturer thereof and adjustments for the same are to be made directly with the manufacturer by the customer.

PLUMBING WARRANTY

A Stainless Steel Plumbing/Piping warranty shall be provided by the apparatus manufacturer for products of its manufacture to be free from defects in material and workmanship, under normal use and service, for a period of ten (10) years from the date of delivery.

THIRD PARTY PUMP CERTIFICATION AND TESTING

The apparatus upon completion will be tested and certified by an independent third party testing company. The certification tests will follow the guide lines outlined in (NFPA) 1901, Standard for Automotive Fire Apparatus.

There shall be multiple tests performed by the contractor and the third party testing company when the apparatus has been completed. The manufacturer shall provide the completed Test Certificate(s) to the purchaser at time of delivery.

The fire pump shall be mounted on the apparatus and shall have a minimum rated capacity of 250 gpm (1000 L/min) at 150 psi (1000 kPa) net pump pressure.

Where the apparatus is designed for pump in-motion operations, the vehicle drive engine and drive train shall be arranged so that the pump can deliver at least 20 gpm (76 L/min) at a gauge pressure of 80 psi (550 kPa), while the fire apparatus is moving.

If the pumping system provided is rated at 3000 gpm (12,000 L/min) or less, the pump shall be capable of delivering the following:

(1) One hundred percent of rated capacity at 150 psi (1000 kPa) net pump pressure

(2) Seventy percent of rated capacity at 200 psi (1400 kPa) net pump pressure

(3) Fifty percent of rated capacity at 250 psi (1700 kPa) net pump pressure

If the pumping system provided is rated at greater than 3000 gpm (12,000 L/min), the pump shall be capable of delivering the following:

(1) One hundred percent of rated capacity at 100 psi (700 kPa) net pump pressure

(2) Seventy percent of rated capacity at 150 psi (1000 kPa) net pump pressure

(3) Fifty percent of rated capacity at 200 psi (1400 kPa) net pump pressure

If the fire pump has a rated capacity of 750 gpm (3000 L/min) or greater, the pump shall be tested after the pump and all its associated piping and equipment have been installed on the apparatus.

The tests shall include at least the pumping test, the pumping engine overload test, the pressure control system test, the priming device tests, and the vacuum test.

A test plate shall be provided at the pump operator's panel that gives the rated discharges and pressures together with the speed of the engine as determined by the certification test for each unit, the position of the parallel/series pump as used, and the governed speed of the engine as stated by the engine manufacturer on a certified brake horsepower curve. The plate shall be completely stamped with all information at the factory and attached to the vehicle prior to shipping.

Pumping Test:

The test site shall be adjacent to a supply of clear water at least 4 feet (1.2 m) deep, with the water level not more than 10 feet (3 m) below the center of the pump intake, and close enough to allow the suction strainer to be submerged at least 2 feet (0.6 m) below the surface of the water when connected to the pump by 20 feet (6 m) of suction hose.

Tests shall be performed when conditions are as follows:

(1) Air temperature: 0 degrees Fahrenheit to 110 degrees Fahrenheit (−18 degrees Celsius to 43 degrees Celsius)

(2) Water temperature: 35 degrees Fahrenheit to 90 degrees Fahrenheit (2 degrees Celsius to 32 degrees Celsius)

(3) Barometric pressure: 29 inches Hg (98.2 kPa), minimum (corrected to sea level)

Engine-driven accessories shall not be functionally disconnected or rendered inoperative during the tests.

The following devices shall be permitted to be turned off or not operating during the pump test:

(1) Aerial hydraulic pump
(2) Foam pump
(3) Hydraulically driven equipment (other than hydraulically driven line voltage generator)
(4) Winch
(5) Windshield wipers
(6) Four-way hazard flashers
(7) Compressed air foam system (CAFS) compressor

All structural enclosures, such as floorboards, gratings, grilles, and heat shields, not provided with a means for opening them in service shall be kept in place during the tests.

All test gauges shall meet the requirements for Grade A gauges as defined in ASME B40.100, *Pressure Gauges and Gauge Attachments*, and shall be at least size 3 1/2 per ASMEB40.100. The pump intake gauge shall have a range of 30 in. Hg (100 kPa) vacuum to zero for a vacuum gauge, or 30 in. Hg (100 kPa) vacuum to a gauge pressure of 150 psi (1000 kPa) for a compound gauge. The discharge pressure gauge shall have a gauge pressure range of 0 psi to 400 psi (0 kPa to 2800 kPa). All pilot gauges shall have a gauge pressure range of at least 0 psi to 160 psi (0 kPa to 1100 kPa). All gauges shall be calibrated in the month preceding the tests using a dead-weight gauge tester or a master gauge meeting the requirements for Grade 3A or 4A gauges, as defined in ASME B40.100, *Pressure Gauges and Gauge Attachments*, that has been calibrated within the preceding year.

The engine speed–measuring equipment shall consist of a nonadjustable tachometer supplied from the engine or transmission electronics, a revolution counter on a checking shaft outlet and a stopwatch, or other engine speed–measuring means that is accurate to within ± 50 rpm of actual speed.

If the apparatus is equipped with a fire pump rated at 750 gpm (3000 L/min) or greater but not greater than 3000 gpm (12,000 L/min), the pump shall be subjected to a 3 hour pumping test from draft consisting of 2 hours of continuous pumping at rated capacity at a minimum of 150 psi (1000 kPa) net pump pressure, followed by 1/2 hour of continuous pumping at 70 percent of rated capacity at a minimum of 200 psi (1400 kPa) net pump pressure and 1/2 hour of continuous pumping at 50 percent of rated capacity at a minimum of 250 psi (1700 kPa) net pump pressure and shall not be stopped until after the 2 hour test at rated capacity, unless it becomes necessary to clean the suction strainer.

If the apparatus is equipped with a fire pump rated at greater than 3000 gpm (12,000 L/min), the pump shall be subjected to a 3 hour pumping test from draft consisting of 2 hours of continuous pumping at rated capacity at 100 psi (700 kPa) net pump pressure, followed by 1/2 hour of continuous pumping at 70 percent of rated capacity at 150 psi (1000 kPa) net pump pressure and 1/2 hour of continuous pumping at 50 percent of rated capacity at 200 psi (1400 kPa) net pump pressure and shall not be stopped until after the 2 hour test at rated capacity, unless it becomes necessary to clean the suction strainer.

If the apparatus is equipped with a fire pump rated at less than 750 gpm (3000 L/min), the pump shall be subjected to a 50-minute pumping test from draft consisting of 30 minutes of continuous pumping at rated capacity at a minimum of 150 psi (1000 kPa) net pump pressure, followed by 10 minutes of continuous pumping at 70 percent of rated capacity at a minimum of 200 psi (1400 kPa) net pump pressure and 10 minutes of continuous pumping at 50 percent of rated capacity at a minimum of 250 psi (1700 kPa) net pump pressure and shall not be stopped until after the 30-minute test at rated capacity, unless it becomes necessary to clean the suction strainer.

Pumping Engine Overload Test:

If the pump has a rated capacity of 750 gpm (3000 L/min) or greater but not greater than 3000 gpm (12,000 L/min), the apparatus shall be subjected to an overload test consisting of pumping rated capacity at 165 psi (1100 kPa) net pump pressure for at least 10 minutes.

This test shall be performed immediately following the pumping test of rated capacity at 150 psi (1000 kPa).

The capacity, discharge pressure, intake pressure, and engine speed shall be recorded at least three times during the overload test.

Pressure Control System Test:

If the pump is rated at 3000 gpm (12,000 L/min) or less, the pressure control system on the pump shall be tested as follows:

(1) The pump shall be operated at draft, delivering rated capacity at a discharge gauge pressure of 150 psi (1000 kPa).

(2) The pressure control system shall be set in accordance with the manufacturer's instructions to maintain the discharge gauge pressure at 150 psi (1000 kPa) ±5 percent.

(3) All discharge valves shall be closed not more rapidly than in 3 seconds and not more slowly than in 10 seconds.

(4) The rise in discharge pressure shall not exceed 30 psi (200 kPa) and shall be recorded.

(5) The original conditions of pumping rated capacity at a discharge gauge pressure of 150 psi (1000 kPa) shall be reestablished.

(6) The discharge pressure gauge shall be reduced to 90 psi (620 kPa) by throttling the engine fuel supply, with no change to the discharge valve settings, hose, or nozzles.

(7) The pressure control system shall be set according to the manufacturer's instructions to maintain the discharge gauge pressure at 90 psi (620 kPa) ±5 percent.

(8) All discharge valves shall be closed not more rapidly than in 3 seconds and not more slowly than in 10 seconds.

(9) The rise in discharge pressure shall not exceed 30 psi (200 kPa) and shall be recorded.

(10) The pump shall be operated at draft, pumping 50 percent of rated capacity at a discharge gauge pressure of 250 psi (1700 kPa).

(11) The pressure control system shall be set in accordance with the manufacturer's instructions to maintain the discharge gauge pressure at 250 psi (1700 kPa) ±5 percent.

(12) All discharge valves shall be closed not more rapidly than in 3 seconds and not more slowly than in 10 seconds.

(13) The rise in discharge pressure shall not exceed 30 psi (200 kPa) and shall be recorded.

If the pump is rated at greater than 3000 gpm (12,000 L/min), the pressure control system on the pump shall be tested as follows:

(1) The pump shall be operated at draft, delivering rated capacity at a discharge gauge pressure of 100 psi (700 kPa).

(2) The pressure control system shall be set in accordance with the manufacturer's instructions to maintain the discharge gauge pressure at 100 psi (700 kPa) ±5 percent.

(3) All discharge valves shall be closed not more rapidly than in 3 seconds and not more slowly than in 10 seconds.

(4) The rise in discharge pressure shall not exceed 30 psi (200 kPa) and shall be recorded.

(5) The original conditions of pumping rated capacity at a discharge gauge pressure of 150 psi (1000 kPa) shall be reestablished.

(6) The pump shall be operated at draft, pumping 50 percent of rated capacity at a discharge gauge pressure of 200 psi (1400 kPa).

(7) The pressure control system shall be set according to the manufacturer's instructions to maintain the discharge gauge pressure at 200 psi (1400 kPa) ±5 percent.

(8) All discharge valves shall be closed not more rapidly than in 3 seconds and not more slowly than in 10 seconds.

(9) The rise in discharge pressure shall not exceed 30 psi (200 kPa) and shall be recorded.

Priming System Tests:

With the apparatus set up for the pumping test, the primer shall be operated in accordance with the manufacturer's instructions until the pump has been primed and is discharging water. This test shall be permitted to be performed in connection with priming the pump for the pumping test.

The interval from the time the primer is started until the time the pump is discharging water shall be noted. The time required to prime the pump shall not exceed 30 seconds if the rated capacity is 1250 gpm (5000 L/min) or less. The time required to prime the pump shall not exceed 45 seconds if the rated capacity is 1500 gpm (6000 L/min) or more.

An additional 15 seconds shall be permitted in order to meet the requirements of 16.13.5.3 and 16.13.5.4 when the pump system includes an auxiliary 4 inches (100 mm) or larger intake pipe having a volume of 1 foot^3 (0.30 m^3) or more.

Vacuum Test:

The vacuum test shall consist of subjecting the interior of the pump, with all intake valves open, capped or plugged, and all discharge caps removed, to a vacuum of 22 inches/Hg (75 kPa) by means of the pump priming system.

At altitudes above 2000 feet (600 m), the vacuum attained shall be permitted to be less than 22 inches/Hg (75 kPa) by 1 inch/Hg (3.4 kPa) for each 1000 feet (305 m) of altitude above 2000 feet (610 m).

The vacuum shall not drop more than 10 inches/Hg (34 kPa) in 5 minutes.

The primer shall not be used after the 5 minute test period has begun and the engine shall not be operated at any speed greater than the governed speed during this test.

Water Tank–to–Pump Flow Test:

A water tank–to–pump flow test shall be conducted as follows:

(1) The water tank shall be filled until it overflows.

(2) All intakes to the pump shall be closed.

(3) The tank fill line and bypass cooling line shall be closed.

(4) Hose lines and nozzles for discharging water at the rated tank-to-pump flow rate shall be connected to one or more discharge outlets.

(5) The tank-to-pump valve(s) and the discharge valves leading to the hose lines and nozzles shall be fully opened.

(6) The engine throttle shall be adjusted until the required flow rate −0/+5 percent is established.

(7) The discharge pressure shall be recorded.

(8) The discharge valves shall be closed, and the water tank refilled.

(9) The bypass line shall be permitted to be opened temporarily, if needed, to keep the water temperature in the pump within acceptable limits.

(10) The discharge valves shall be reopened fully, and the time noted.

(11) If necessary, the engine throttle shall be adjusted to maintain the discharge pressure recorded as noted in 16.13.7.1(7).

(12) When the discharge pressure drops by 10 psi (70 kPa) or more, the time shall be noted and the elapsed time from the opening of the discharge valves shall be calculated and recorded.

Volume Discharge Calculation:

The volume discharged shall be calculated by multiplying the rate of discharge in gallons per minute (liters per minute) by the time in minutes elapsed from the opening of the discharge valves until the discharge pressure drops by at least 10 psi (70 kPa).

Other means shall be permitted to be used to determine the volume of water pumped from the tank such as a totalizing flowmeter, weighing the truck before and after, or refilling the tank using a totalizing flowmeter.

The rated tank-to-pump flow rate shall be maintained until 80 percent of the rated capacity of the tank has been discharge.

Engine Speed Advancement Interlock Test

The engine speed advancement interlock system shall be tested to verify that engine speed cannot be increased at the pump operator's panel unless there is throttle-ready indication.

If the apparatus is equipped with a stationary pump driven through split-shaft PTO, the test shall verify that the engine speed control at pump operator's panel cannot be advanced when either of the following conditions exists:

(1) The chassis transmission is in neutral, the parking brake is off, and the pump shift in the driving compartment is in the road position.

(2) The chassis transmission has been placed in the position for pumping as indicated on the label provided in the driving compartment, the parking brake is on, and the pump shift in the driving compartment is in the road position.

If the apparatus is equipped with a stationary pump driven through a transmission mounted PTO, front-of-engine crankshaft PTO, or engine flywheel PTO, the test shall verify that the engine speed control on the pump operator's panel cannot be advanced when either of the following conditions exists:

(1) The chassis transmission is in neutral, the parking brake is off, and the pump shift status in the driving compartment is disengaged.
(2) The chassis transmission is in any other gear other than neutral, the parking brake is on, and the pump shift in the driving compartment is in the "Pump Engaged" position.

If the apparatus is equipped with a pump driven by the chassis engine designed for both stationary pumping and pump-in-motion, the test shall verify that the engine speed control at pump operator's panel cannot be advanced when either of the following conditions exists:

(1) The chassis transmission is in neutral, the parking brake is on, and the pump shift status in the driving compartment is disengaged.
(2) The chassis transmission is in any other gear other than neutral, the parking brake is on, and the pump shift in the driving compartment is in the "Pump Engaged" or the "OK to Pump In-Motion" position.

If the apparatus is equipped with a stationary pump driven through transfer case PTO, the test shall verify that the engine speed control on the pump operator's panel cannot be advanced when either of the following conditions exists:

(1) The chassis transmission is in neutral, the transfer case is in neutral, the parking brake is off, and the pump shift in the driving compartment is in the road position.
(2) The chassis transmission is in neutral, the transfer case is engaged, the parking brake is off, and the pump shift in the driving compartment is in the road position.
(3) The chassis transmission has been placed in the position for pumping as indicated on the label provided in the driving compartment, the parking brake is on, and the pump shift in the driving compartment is in the road position.

LOW-VOLTAGE ELECTRICAL SYSTEM PERFORMANCE TESTING

The apparatus low-voltage electrical system will be tested and certified. Tests shall be performed when the air temperature is between 0 degrees Fahrenheit and 110 degrees Fahrenheit (–18 degrees Celsius and 43 degrees Celsius). The three tests defined in NFPA shall be performed in the order in which they appear. Before each test, the batteries shall be fully charged until the voltage stabilizes at the voltage regulator set point and the lowest charge current is maintained for 10 minutes. Failure of any of these tests shall require a repeat of the sequence.

Reserve Capacity Test:

The engine shall be started and kept running until the engine and engine compartment temperatures are stabilized at normal operating temperatures and the battery system is fully charged.

The engine shall be shut off and the minimum continuous electrical load shall be activated for 10 minutes.

All electrical loads shall be turned off prior to attempting to restart the engine. The battery system shall then be capable of restarting the engine. Failure to restart the engine shall be considered a test failure of the battery system.

Alternator Performance Test at Idle:

The minimum continuous electrical load shall be activated with the engine running at idle speed.

The engine temperature shall be stabilized at normal operating temperature.

The battery system shall be tested to detect the presence of battery discharge current. The detection of battery discharge current shall be considered a test failure.

Alternator Performance Test at Full Load:

The total continuous electrical load shall be activated with the engine running up to the engine manufacturer's governed speed.

The test duration shall be a minimum of 2 hours.

Activation of the load management system shall be permitted during this test.

An alarm sounded by excessive battery discharge, as detected by the system required in NFPA 13.3.4, or a system voltage of less than 11.8 V dc for a 12 V nominal system or 23.6 V dc for a 24 V nominal system, for more than 120 seconds, shall be considered a test failure.

Low Voltage Alarm Test:

Following the above test, a Low Voltage Alarm Test will be performed in the manner prescribed.

With the engine shut off, the total continuous electrical load shall be activated and shall continue to be applied until the excessive battery discharge alarm activates.

The battery voltage shall be measured at the battery terminals.

The test shall be considered a failure if the alarm has not yet sounded 140 seconds after the voltage drops to 11.70V for a 12 V nominal system or 23.4 V for a 24 V nominal system.

The battery system shall then be able to restart the engine. Failure to restart the engine shall be considered a test failure.

FACTORY PRE-CONSTRUCTION CONFERENCE

The factory authorized Distributor shall be required, prior to manufacturing, to have a pre-construction conference at the manufacturing facility with a factory representative present and with One (1) individual(s) from the Ledyard Volunteer Fire Company to finalize all construction details.

The factories authorized distributor shall, at his expense, provide transportation, lodging, and meals. Any distance greater than 200 miles shall be by commercial air travel.

FINAL INSPECTION CONFERENCE

The factory authorized Distributor shall be required, during manufacturing, to have a final completion inspection conference at the site of the manufacturing facility with One (1) individuals from the Ledyard Volunteer Fire Company to inspect the apparatus after construction.

The factories authorized distributor shall, at his expense, provide transportation, lodging, and meals. Any distance greater than 200 miles shall be by commercial air travel.

MAXIMUM OVERALL LENGTH REQUIREMENT

The apparatus specified shall be constructed as detailed and shall NOT exceed a maximum overall length of 420 inches.

MAXIMUM OVERALL HEIGHT REQUIREMENT

The apparatus specified shall be constructed as detailed and shall NOT exceed a maximum overall height of 138 inches.

MAXIMUM OVERALL WIDTH OF NINETY-NINE (99) INCHES

The apparatus specified shall be constructed as detailed and shall NOT exceed a Maximum Overall Width of Ninety-nine (99.00) inches.

This dimension shall include the primary construction of the apparatus body and chassis cab. Any peripheral items shall not be incorporated into this measurement.

The items included, but not limited to, are: Rub Rails, Fenderettes, Mirrors, Lights, Handrails, Front Bumpers, Cab Steps, Overlays, Etc.

MAXIMUM WHEELBASE REQUIREMENT

The apparatus specified shall be constructed with no restrictions to the maximum wheelbase.

MAXIMUM WHEELBASE REQUIREMENT

The apparatus specified shall be constructed with no restrictions to the maximum wheelbase.

== Tanker Dryside - Chassis - 10.220 06/06/22 ==

CAB STEP DRESS-UP PANELS

There shall be aluminum diamond plate dress-up panels installed between the two (2) door chassis cab steps on both the driver and passenger sides.

DRIVE LINE MODIFICATION

The chassis drive line shall be modified from the chassis manufactures original status to accommodate any changes required by the apparatus manufacturer, including wheelbase, pump installation, or otherwise.

HORIZONTAL EXHAUST

The chassis shall have a horizontal exhaust system plumbed to the side of the apparatus body just ahead of the rear wheels.

EXHAUST HEAT SHIELD

There shall be an exhaust heat shield added to the chassis provided exhaust. The shield shall terminate past the front compartment and shall incorporate a heavy duty spray on insulation under R1. With this shield, the temperature of the front compartment shall not exceed the ambient temperature.

The heat shield shall be attached to the underside of the body utilizing a flexible bracket.

BATTERY LOCATION

The three (3) chassis supplied batteries shall be relocated to the pump house. The batteries shall be easily accessed for maintenance and replacement.

AUTO THROTTLE

Engine will increase in RPM to a preset amount if the battery voltage drops below 11.7V and the pump is not engaged, or transmission placed in drive gear.

HAZARD LIGHT IN CAB

There shall be a LED "Door Open" indicator light provided and installed in the chassis cab. The light shall be installed on the cab dash between the driver and officer (providing space availability) and shall activate when the parking brake is released and a compartment door or any additional specified accessible devices are not in the completely closed positions.

A warning placard shall be installed in the apparatus cab near the light, stating "Do Not Move Apparatus When Light Is On."

DELUXE CONSOLE WITH BINDER STORAGE

The deluxe electrical control center console shall be fabricated of .125 inch smooth aluminum and designed to fit the chassis configuration. The base of the console shall be custom trim-fit to the chassis floor line and be securely fastened.

Above the console at the rear wall of the cab there shall be binder storage provided consisting of two (2) individually partitioned angled storage areas to hold 3-ring binders, maps or manuals.

The top of the console shall be formed with a 1.00 inch lip bent up around its perimeter. The top shall be fastened to the base with threaded fasteners for ease of removal and access to the electrical hardware contained within.

This area shall serve as the main electrical distribution point for all chassis related functions and contain the majority of the hardware related to these functions.

ROCKER SWITCH PANEL

All specified lighting fixtures and electrical components shall be activated by Carling V-series rocker style switches. The switches shall be located on a separate embossed electrical panel, fabricated with aluminum complete with backlit name tags describing the function of each individual switch and installed on the console specified.

An internally lighted red rocker switch shall be furnished on the left and identified as the "MASTER WARNING".

CONSOLE FINISH

The console shall be a painted finish/color equivalent to the chassis interior unless specified otherwise.

BATTERY CHARGER

A battery charger with a 40 amp output to the batteries shall be installed in the cab in the "best fit" location as determined by the apparatus manufacture.

The charger shall be manufactured by Kussmaul Electronics and be model Auto Charge LPC 40.

BATTERY CONDITIONER DISPLAY

A Kussmaul battery conditioner display shall be supplied. The battery conditioner display shall be installed under the driver's door step area and placed forward of the immediate stepping area where space allows.

SHORELINE RECEPTACLE W/AUTO EJECT

A Kussmaul "Super Auto-Eject" 120 volt 20 amp shoreline receptacle shall be installed on the apparatus. It shall automatically eject the plug when the starter button is depressed.

The electrical current shall be interrupted before the plug is automatically ejected to prevent arcing. The plug for the receptacle shall be shipped loose for installation on the shoreline cord.

RECEPTACLE LOCATION

The shoreline connection shall be installed under the driver's door step area and placed forward of the immediate stepping area where space allows.

ELECTRICAL INLET CONNECTION

The electrical inlet shall be connected to the battery charger.

RECEPTACLE COVER COLOR

The inlet connection shall include a red cover.

BUMPER EXTENSION

The chassis frame shall be extended twelve (12) inches. The extension shall provide added protection to the

front of the chassis cab.

FRONT BUMPER APRON

The area between the grille and the bumper shall be overlaid with .188 inch (4.76 mm) thick embossed aluminum diamond plate.

FRONT BUMPER GUIDE POLES

The cab bumper shall include chromed front bumper guide poles installed on the left and right sides of the bumper. The poles shall be mounted so the top of the pole is approximately at the same height as the bottom of the windshield. Each pole shall include an amber light at the top for improved night visibility.

SIREN CONTROL HEAD

One (1) Whelen electronic siren, model #295SLSA1 shall be provided and mounted in the switch panel.

The siren shall be 100-200 watts and feature wail, yelp, phaser, air horn and manual wail. The microphone shall have noise canceling circuitry and Public Address override.

The siren and hard wired microphone shall be installed within reach of the driver and officer.

SIREN SPEAKER

A Whelen model #SA315P 100 watt siren speaker shall be provided. The speaker shall measure 6.50 inches (150mm) tall by 6.50 inches (150mm) wide by 2.9 inches (73mm) deep.

ELECTRONIC SIREN SPEAKER LOCATION

The electronic siren speaker shall be located on the front bumper face on the left side outboard of the frame rail in the far outboard position.

MECHANICAL SIREN

The front bumper shall include an electro mechanical Federal Signal Q2B™ siren, which shall be streamlined, chrome-plated and shall produce 123 decibels of sound at 10.00 feet.

The Q2B™ siren produces a distinctive warning sound that is recognizable at long distances. A unique clutch design provides a longer coast down sound while reducing the amp draw to 100 amps.

The siren shall measure 10.50 inches wide by 10.00 inches high by 14.00 inches deep. The siren shall include mounting hardware designed to recess mount.

SIREN LOCATION

The siren shall be recess mounted on the right side of the front fascia of the bumper approximately in the center of the flat surface between the bumper radius and the frame rail.

SIREN ACTIVATION

The mechanical siren shall be actuated by two (2) Linemaster model SP491 foot switches mounted in the front section of the cab for use by the driver and officer. A momentary siren brake rocker switch shall be provided in the switch panel on the dash.

The foot switches shall be labeled "SIREN".

The siren shall only be active when the master warning switch is on to prevent accidental engagement.

AIR HORNS

There shall be two (2) 24.50 inch chrome plated air horns installed on the apparatus. The air horns shall be manufactured by Hadley Products and be E-Tone model.

AIR HORN LOCATION

The air horns shall be mounted on the chassis hood, one (1) each side.

AIR HORN ACTIVATION

The air horn activation shall be accomplished by two (2) lanyard cables, one (1) on the left hand side accessible to the driver and one (1) on the right hand side accessible to the officer.

PRESSURE PROTECTION VALVE

There shall be a pressure protection valve installed to prevent the use of air horns or other air operated accessories when the system air pressure drops below 80 PSI (5.5 bar).

CHASSIS REQUIRED LABELING

Signs that state "Occupants must be seated and belted when apparatus is in motion" shall be provided.

They shall be visible from each seating position.

There shall be a lubrication plate mounted inside the cab listing the type and grade of lubrication used in the following areas on the apparatus and chassis:

- Engine oil
- Engine Coolant
- Transmission Fluid
- Pump Transmission Lubrication Fluid
- Drive Axle Lubrication Fluid
- Generator Lubrication Fluid (where applicable)
- Tire Pressures

Where applicable, style/brand of labels to match call out in plumbing section

APPARATUS INFORMATION LABEL

There shall be a high-visibility label installed in a location clearly detectable to the driver while in the seated position.

The label shall indicate the following specified information.

Overall Height (feet and inches)
Overall Length (feet and inches)
Overall GVWR (tons or metric tons)

CAB HELMET WARNING LABEL

There shall be a high-visibility label installed in a location clearly detectable from each seating position.

The label shall indicate the following specified information.

"DO NOT WEAR HELMET WHILE SEATED"

TIRE PRESSURE MONITORING SYSTEM

There shall be RealWheels LED AirGuard Set and Go LED indicators (Model RWT1236) provided for each wheel of the apparatus. The tire pressure monitoring system shall indicate if there is improper air pressure in the tire.

The inner tire on the rear dual axle(s) shall have an extension provided that will pass through the outside rim and attach to the stabilizer providing an unobstructed view for inspection of the inner tire air pressure.

The indicators shall be installed by the department after the unit has been fully equipped and the tires set to the manufactures recommended pressure rating. The indicators will calibrate to that initial air pressure setting upon installation and will intermittently flash when the tire pressure is reduced by 5 to 10 psi from its original calibrated pressure.

RETRO-REFLECTIVE STRIPING

Retro-reflective striping shall be added to the inside of the cab doors in accordance with NFPA requirements.

VEHICLE DATA RECORDER (VDR)

A Weldon, Model number 6444-0000-00, Vehicle Data Recorder which collects and stores essential vehicle data shall be provided. Reviewing the information is made easy with an intuitive computer application.

The following features shall be included:

Recorded Data Includes: Vehicle Speed, Acceleration, Deceleration, Engine Speed, Engine Throttle Position, ABS Event, Seat Occupied Status, Seat Belt Status,
Master Optical Warning Switch, Park Brake, Service Brake, Time, Date and Engine Hours.
Password Protected by the customer
Six (6) seat position inputs for occupied and belts buckled. Additional six (6) seat expansion module available (#6020-0000-00)
Easily interfaces with traditional wiring, V-MUX™ or other multiplexing systems
Data is extracted by a 05023100 standard, mini USB cable
Use in conjunction with the Occupant Restraint Indicator or V-MUX™ multiplex system

Occupant Restraint Indicator

An Occupant Restraint Indicator, model number 6204-0000-00 shall be provided.
Designed to alert driver and officer, this module will indicate where restraints of occupied seats are properly fastened keeping personnel safe.

The following features shall be included:

Low profile, compact size
Supports commercial and custom cab seating layouts; up to 12 seats
Dimming feature adjusts indicator intensity to synchronize with dash lights
Built-in audible alarm
Standard 4 year warranty

COMMERCIAL CAB FACTORY FINISH

The chassis cab shall have a factory finish.

HEAT EXCHANGER

There shall be a supplementary heat exchanger cooling system installed for use of water from the discharge side of the fire pump through the engine compartment, without intermixing, for absorption of excess heat.

The heat exchanger shall be adequately sized to maintain manufactures recommended temperature of engine coolant under all pumping conditions. Appropriate drains shall be provided to prevent damage from freezing. A valve control shall be supplied at the pump operator's position to open or close the heat exchanger systems plumbing.

ENGINE COMPARTMENT LIGHT

There shall be one (1) 12 volt work light, Weldon LED light model #2631-0000-30, installed in the engine compartment. The light shall have an on/off switch.

CAB PERIMETER LIGHTS

There shall be two (2) perimeter lights installed under the apparatus cab steps, one (1) each side. The lights shall be positioned to provide illumination to the ground area under the cab entry doors.

The lights shall be TecNiq model T44 series, 4" round, 8 diode LED lights.

CAB PERIMETER LIGHTS ACTIVATION

The perimeter lights under the cab entry steps shall be activated by the opening of any cab door and with a switch in the cab.

CAB FIRE EXTINGUISHER

There shall be one (1) 2.5 lb. Amerex ABC Extinguisher provided and shipped loose in the chassis cab.

ANTENNA MOUNTING BASE

There shall be one (1) antenna mounting base(s) with sufficient length of 50 OHM coax cable and weather resistant cap shall be supplied for two-way radios. The mount shall be located on the cab roof in a best fit location determined by the manufacture. The cable shall be routed to the officer's side seat box with enough cable for the customer to route to the instrument panel if needed.

HELMET RESTRAINTS

Two (2) Ziamatic UHH-1 Universal Helmet Holders shall be provided and shipped loose with the apparatus.

REAR INDIVIDUAL AND FULL WIDTH MUD FLAP WITH LETTERING

Heavy-duty rubber mud flaps shall be provided behind the rear wheels. In addition to the individual rear mud

flaps, there shall be a seamless polyruber full width mud flap provided rearward of the fuel tank. The full width mud flaps shall be fastened to the apparatus using a stainless steel hinge provided by the vendor.

The full width mudflap shall be manufactured by Box Alarm Grilles and shall accommodate up to two (2) colors of the below specified lettering.

DEALER MUST EDIT

Final layout and verbiage to be reviewed at pre-con.

== Tanker Dryside - Pump Control - 10.220 06/06/22 ==

PUMP COMPARTMENT

The complete apparatus pump compartment shall be constructed of a combination of structural tubing and formed sheet metal. The same materials used in the body shall be utilized in the construction of the pump compartment. The structure shall be welded utilizing the same A.W.S. Certified welding procedure as used on the structural body module. These processes shall ensure the quality of structural stability of the pump compartment module.

The pump compartment module shall be separated from the apparatus body with a gap. This gap is necessary to accommodate the flexing of the chassis frame rails that are encountered while the vehicle is in transit so that harmful torsional forces are not transmitted into the structural framework.

VIBRA-TORQ™ PUMP MODULE MOUNTING SYSTEM

The entire pump module assembly shall be mounted so that it "floats" above the chassis frame rails exclusively with Vibra-Torq™ torsion isolator assemblies to reduce the vibration and stress providing an extremely durable pump module mounting system.

The pump module substructure shall be mounted above the frame to allow independent flexing to occur between the body and the chassis. Each assembly shall be mounted to the chassis frame rails with steel, gusseted mounting brackets. Each bracket shall be powder coated for corrosion resistance. Each pump compartment mount bracket shall be mounted to the side chassis frame flange with two 5/8"-UNC Grade 5 HHCS.

Each assembly shall have a two-part rubber vibration isolator. The isolator shall be of a specific durometer to carry the necessary loads of the pump module, apparatus body, equipment, tank, water, and hose. The quantity of mounts utilized shall correspond directly to the anticipated weight being supported. Certain assemblies shall also incorporate a torsion spring. Helical coil springs shall be incorporated into specific mounts in tandem with the rubber isolators to minimize the stress absorbed by the body caused from chassis frame rail flexing.

There shall be no welding to the chassis frame rail sides, web or flanges, or drilling of holes in the top or bottom

frame flanges between axles. All pump module to chassis connections shall be bolted so that in the event of an accident, the body shall be easily removable from the truck chassis for repair or replacement.

Because of the constant vibration and twisting action that occurs in chassis frame rails and suspension, the torsion mounting system is required to minimize the possibility of premature pump module structural failures. The Vibra-Torq™ mounting system shall have a lifetime warranty.

PUMP COMPARTMENT WORK LIGHT

One (1) Weldon LED work light model #2631-0000-30 shall be installed in the pump compartment module to illuminate the piping and plumbing components.

The light shall be activated by a weather resistant toggle switch installed inside the pump compartment.

LEFT SIDE OPERATORS PANEL & PUMP PANEL

The pump operator's panel shall be located on the left side of the apparatus pump compartment. The panel shall be split into an upper and lower section.

The material of the operator's panel shall match that of the overlays and right side panels specified.

The upper panel shall house gauges and controls and be hinged to allow easy access to components. The door shall have a stainless steel hinge, dual point chrome push button latches and a rubber seal provided to prevent excessive moisture from entering or leaving the pump house.

The lower panel on the left side shall be a removable panel attached with mechanical fasteners.

Valve controls shall be immediately adjacent to its respective gauge. The valve controls shall be properly labeled, and color coded for ease of use. All markings shall be permanent in nature.

OPEN DOOR WARNING

If the hinged panel is not properly closed and the parking brake is released, it shall activate the hazard light in the cab to alert the crew.

VALVE CONTROL - T-HANDLE PULL ASSEMBLY

Unless specified otherwise, the discharge valves shall be controlled from an Innovative Controls side mount valve control assembly. The ergonomically designed handle shall be chrome-plated with recessed areas for name plate and color code. A .75 inch (19.5 mm) diameter hardcoat anodized aluminum control rod and housing shall, together with a stainless spring steel locking mechanism, eliminate valve drift. Teflon impregnated bronze bushings in both ends of the rod housing shall minimize rod deflection, never need lubrication, and ensure

consistent long-term operation. The control assembly shall include a decorative chrome-plated panel-mounting bezel. The valve operating mechanism will indicate the position of the valve at all times.

PUMP PANEL LIGHTS

There shall be adequate illumination provided at the side pump panels with the installation of two (2) brushed stainless steel shielded light assemblies, one (1) on the left and one (1) on the right side pump compartment.

Each shield shall contain the maximum number of lights permitted in the space available for 9.00 inch (21cm) LED Tube lights model #RX-15T16-5050-21CM.

There shall also be one directional light Weldon style 9186-23882 Surface Mount series installed to add illumination at the lower pump panel.

PUMP PANEL LIGHT ACTIVATION

One (1) pump panel light at the operator's panel shall be illuminated at the time the pump is ready to pump and it is "OK TO PUMP". The Pump shift has been completed and the chassis automatic transmission is engaged.

The remaining lights shall be controlled by a switch located on the side operator's panel.

PUMP COMPARTMENT SERVICE ACCESS

The front portion of the pump compartment structure (directly behind the chassis cab) shall not be overlaid. The outer edges of the pump compartment shall be overlaid with aluminum diamond plate for a pleasing appearance.

PUMP COMPARTMENT WIDTH

The width of the pump compartment (front to back) shall be 44.00 inches (1.12 m).

RIGHT SIDE PUMP PANELS STYLE

There shall be two (2) pump panels on the right side of the pump compartment, one (1) upper and one (1) lower. Each panel shall be accessible by a quick-release mechanical type latch, closing against a door seal. Both panels shall be easily removed for access to the pump for serviceability.

RIGHT & LEFT SIDE BLACK LAMINOL FINISHING FOR PANELS AND OVERLAYS

The panels for the pump compartment on the left and right side shall be made from heavy duty "Black Laminol" covered aluminum, capable of withstanding the conditions and effects of extreme weather and temperature changes.

The tubular structure shall be overlaid on each side of the pump compartment underneath the access panels and

shall be made of "Black Laminol" covered aluminum.

RUNNING BOARDS

The pump compartment running boards shall be made of a structural tubular framework. The tubular frame supports all loads by transmitting the loads through the pump compartment structure directly to the chassis frame rails.

The running boards shall be independent of the apparatus body and shall be integrated to the pump compartment structure only, eliminating any pump compartment to body interference. This is essential in keeping a truly 'modular' configuration. Slip-resistant abrasive adhesive materials shall be applied to the top surface of the running board framework to provide a suitable stepping surface where applicable.

FLOATING HOSE WELL

The right side running board area shall have a floating hose well with drain holes provided.

The hose well shall be fabricated of .125 inch (3.18 mm) smooth aluminum and be formed so that it rests in the framework of the running board with no fasteners installed. The front and rear ends of the hose well shall be slightly tapered, to allow the well to float up instead of being damaged in cases where extreme break over angles or impact from road debris are encountered.

The hose well shall be approximately 8.00 inches (203.20 mm) deep (measured from the top of the running board) and as wide and long as possible to fit in the framework of the running board.

VELCRO HOLD DOWN STRAPS

There shall be two (2) Velcro strap type hold downs installed on the storage area. The hold downs will be used to secure the stored equipment in place during transit.

LEFT SIDE RUNNING BOARD OVERLAY

The left side running board shall have a 3/16" embossed aluminum diamond plate overlay installed. The stepping area shall be as large as possible, overlapping the perimeter of the structural running board.

HOSEWELL MATTING

VersaFlex matting shall be included on the bottom of the running board hosewell compartment.

MATTING COLOR

The matting shall be black in color.

APPARATUS PLUMBING LABELING

Innovative Controls verbiage tag bezels shall be installed. The bezel assemblies will be used to identify apparatus components. These tags shall be designed and manufactured to withstand the specified apparatus service environment and shall be backed by a warranty equal to that of the exterior paint and finish. The verbiage tag bezel assemblies shall include a chrome-plated panel-mount bezel with durable easy-to-read UV resistant polycarbonate inserts featuring the specified verbiage and color coding. These UV resistant polycarbonate verbiage and color inserts shall be subsurface screen printed to eliminate the possibility of wear and protect the inks from fading. Both the insert labels and bezel shall be backed with 3M permanent adhesive, which meets UL969 and NFPA standards.

PLUMBING LABELS

The plumbing labels, where applicable, shall be full color in place of the standard grey.

Color code tag sheet to be provided during the preconstruction meeting.

PRESSURE GOVERNOR and ENGINE MONITORING DISPLAY

Fire Research PumpBoss series PBA400-A00 pressure governor and monitoring display kit shall be installed. The kit shall include a control module, intake pressure sensor, discharge pressure sensor, and cables. The control module case shall be waterproof and have dimensions not to exceed 6 3/4" high by 4 5/8" wide by 1 1/2" deep. The control knob shall be 2" in diameter with no mechanical stops, have a serrated grip, and a red idle push button in the center. It shall not extend more than 1 3/4" from the front of the control module. Inputs for monitored information shall be from a J1939 databus or independent sensors. Outputs for engine control shall be on the J1939 databus or engine specific wiring. Inputs to the control module from the pump discharge and intake pressure sensors shall be electrical.

The following continuous displays shall be provided:

- Engine RPM; shown with four daylight bright LED digits more than 1/2" high
- Check engine and stop engine warning LEDs
- Oil pressure; shown on a dual color (green/red) LED bar graph display
- Engine coolant temperature; shown on a dual color (green/red) LED bar graph display
- Transmission Temperature: shown on a dual color (green/red) LED bar graph display
- Battery voltage; shown on a dual color (green/red) LED bar graph display
- Pressure and RPM operating mode LEDs
- Pressure / RPM setting; shown on a dot matrix message display
- Throttle ready LED.

The dot-matrix message display shall show diagnostic and warning messages as they occur. It shall show monitored apparatus information, stored data, and program options when selected by the operator. All LED intensity shall be automatically adjusted for day and nighttime operation.

The program shall store the accumulated operating hours for the pump and engine to be displayed with the push of a button. It shall monitor inputs and support audible and visual warning alarms for the following conditions:

High Battery Voltage
Low Battery Voltage (Engine Off)
Low Battery Voltage (Engine Running)
High Transmission Temperature
Low Engine Oil Pressure
High Engine Coolant Temperature
Out of Water (visual alarm only)
No Engine Response (visual alarm only).

The program features shall be accessed via push buttons located on the front of the control module. There shall be a USB port located at the rear of the control module to upload future firmware enhancements.

The governor shall operate in two control modes, pressure and RPM. No discharge pressure or engine RPM variation shall occur when switching between modes. A throttle ready LED shall light when the interlock signal is recognized. The governor shall start in pressure mode and set the engine RPM to idle. In pressure mode the governor shall automatically regulate the discharge pressure at the level set by the operator. In RPM mode the governor shall maintain the engine RPM at the level set by the operator except in the event of a discharge pressure increase. The governor shall limit a discharge pressure increase in RPM mode to a maximum of 30 psi. Other safety features shall include recognition of no water conditions with an automatic programmed response and a push button to return the engine to idle.

The pressure governor and monitoring pressure display shall be programmed to interface with a specific engine.

INTAKE PRESSURE RELIEF VALVE

A Task Force Tips model #A18XX pressure relief valve shall be provided. The valve shall have an easy to read adjustment range from 90 to 300 PSI with easy to read 90, 125, 150, 200, 250, 300 psi settings and an "OFF" position. Pressure adjustment can be made utilizing a ¼" hex key, 9/16" socket or 14mm socket.

For corrosion resistance the cast aluminum valve shall be a hardcoat anodized with a powder coat interior and exterior finish. The valve shall meet (NFPA) 1901, Standard for Automotive Fire Apparatus, requirements for pump inlet relief valves. The unit shall be covered by a five year warranty. The valve shall be preset at 125 PSI (860 kPa) suction inlet pressure, unless otherwise shop noted. The valve shall be installed inside the pump compartment where it will be easily accessible for future adjustment. The excess water shall be plumbed to the atmosphere and shall dump on the opposite side of the pump operator.

For normal pumping operations, the relief valve shall not be capped and there shall be a placard stating "DO NOT CAP" installed.

PRESSURE GOVERNOR and MONITORING DISPLAY BUZZER

Fire Research PumpBoss –Z1 option for an audible alarm buzzer shall be installed. The buzzer shall sound when a signal from the PumpBoss activates it.

MASTER GAUGES

Class 1 6.00 inch (150 mm) gauges shall be supplied for the master intake and master discharge gauges.

The gauges shall be model LFP610.

GAUGE SCALE

The master intake gauge shall be marked for a reading from -30 to 400 PSI and the master discharge shall be marked for reading a discharge pressure of -30 to 400 PSI.

GAUGE FACE COLOR

Each gauge shall have black markings on a white face.

TESTING PORTS

Test port connections for pressure and vacuum shall be provided at the pump operator's panel. One (1) shall be connected to the intake side of the pump, and the other to the discharge manifold side of the pump.

Each port shall have 0.25 inch (6.35 mm) standard pipe thread connection and be manufactured of non-corrosive polished stainless steel or brass plugs.

TANK LEVEL GAUGE

An Innovative Controls SL Plus Tank Monitor System model number 3030796-01, with a Spartan bezel, shall be installed. The system shall include an electronic display module, a pressure transducer-based sender unit, and the necessary wiring with water-tight plug terminations.

The display module shall show the volume of water in the tank using 16 super bright easy-to-see LEDs. Tank level indication shall be achieved by the use of 4 horizontal rows of LEDs. Full and near-full levels shall be indicated with the illumination of all 4 rows of LEDs, including the illumination of the top row of 4 green LEDs. Tank levels between ½ and ¾ full shall be indicated with the illumination of the bottom 3 rows of LEDs, including the illumination of the top row of 4 blue LEDs. Tank levels between ¼ and ½ full shall be indicated with the illumination of the bottom 2 rows of LED's including the illumination of the top row of 4 amber LEDs. Tank levels between ¼ full and near empty shall be indicated with the illumination of the bottom row of 4 red LEDs only. Tank levels between near empty and empty shall be indicated by flashing the bottom row of 4 red LEDs.

A wide-angle polycarbonate diffusion lens in front of the LEDs create a 180 degree viewing angle. The electronic display module shall be waterproof and shock resistant being encapsulated in a urethane-based potting compound. The potted display module shall be mounted to a chrome plated panel-mount bezel with a durable easy-to-read polycarbonate insert featuring blue graphics and a water icon.

All programming functions shall be accessed and performed from the front of the display module. The programming includes manual or self-calibration and networking capabilities to connect remote slave displays. Low tank level warnings shall include flashing red LEDs starting below the ¼ level, down-chasing LEDs when the tank is almost empty.

The display module shall receive an input signal from a pressure transducer. This stainless steel sender unit shall be installed on the outside of the water tank near the bottom. All wiring, cables and connectors shall be waterproof without the need for sealing grease.

CAB MOUNTED WATER TANK INDICATOR

One (1) Innovative Controls SL Series 5 LED mini water level gauge shall be provided and installed in the cab visible to the driver. The gauge shall be a small readout, consisting of five (5) lights.

TANK LEVEL GAUGE LOCATION

The tank level readouts shall be located on center dash panel.

AUXILIARY WATER LEVEL GAUGE

TANK LEVEL GAUGE

There shall be two (2) Whelen model PSTANK2 water tank level lights provided with chrome bezels. The tank level lights shall indicate fluid level in the water tank. The light colors shall be from top to bottom; Green, blue, Amber, and Red. These lights shall automatically turn off to indicate the water level in the booster tank in 1/4 increments. The tank level lights shall utilize a pressure transducer and driver to provide an accurate reading of the water tank level.

TANK LEVEL GAUGE LOCATION

The tank level readouts shall be located on the apparatus body, one (1) each high on the pump compartment panels.

ADDITIONAL WATER LEVEL GAUGE

TANK LEVEL GAUGE

There shall be one (1) Whelen model PSTANK2 water tank level light provided with a chrome bezel. The tank

level gauge shall indicate fluid level in the water tank. The light colors shall be from top to bottom; Green, Blue, Amber, and Red. These lights shall automatically turn off to indicate the water level in the booster tank in 1/4 increments. The tank level gauge shall utilize a pressure transducer and driver to provide an accurate reading of the water tank level.

TANK LEVEL GAUGE LOCATION

One (1) tank level readout shall be located at the rear of the vehicle, to the left side.

AIR HORN BUTTON

There shall be an air horn activation red push button provided and installed on the pump operator's gauge panel. The air horn button shall be of weather resistance type and labeled "AIR HORN".

FUEL LEVEL GAUGE

There shall be a chassis fuel tank gauge installed on the pump operator's panel.

PUMP COMPARTMENT TOP OVERLAY

The top of the pump compartment shall be overlaid with 1/8" embossed aluminum diamond plate.

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MIDSHIP PUMP

The pump shall have the capacity of 1500 gallons per minute, measured in U.S. Gallons. The pump shall be a Hale Fire Pump, Qmax-150, single stage.

The entire pump shall be manufactured at the pump manufacturer's factory. The pump body and related parts shall be of fine grain alloy cast iron, with a minimum tensile strength of 30,000 PSI. All moving parts in contact with water shall be of high quality bronze or stainless steel. Pump utilizing castings made of lower tensile strength cast iron not acceptable.

Pump body shall be horizontally, on a single plane, in two sections, for easy removal of entire impeller assembly including wear rings and bearings from beneath the pump without disturbing piping or the mounting of the pump on the chassis. The pump body shall have two opposed discharge volute cut waters to eliminate radial unbalance.

The pump shall have one (1) double suction impeller made of hard, fine grain bronze of the mixed flow design; accurately machined, hand-ground and individually balanced. The vanes of the impeller intake eyes shall be hand ground and polished to a sharp edge and be of sufficient size and design to provide ample reserve capacity utilizing minimum horsepower. The pump shaft is to be rigidly supported by three bearings for minimum

deflection. One high lead bronze sleeve bearing to be located immediately adjacent to the impeller (on side opposite the gearbox). The sleeve bearing is to be lubricated by a force fed, automatic oil lubricated design, pressure balanced to exclude foreign material. The gearbox bearings shall be heavy-duty, deep groove ball bearings and they shall be splash lubricated. All gears both drive and pump, shall be of highest quality electric furnace chrome nickel steel. Bores shall be ground to size and teeth integrated and hardened, to give an extremely accurate gear for long life, smooth, quiet running, and higher load carrying capability. An accurately cut spur design shall be provided to eliminate all possible end thrust.

Impeller clearance rings shall be removable and made of non-corrosive material. The pump shaft shall be heat-treated, electric furnace, corrosion resistant, stainless steel. The pump shaft must be sealed with double lip oil seal to keep road dirt and water out of the drive unit.

The pump drive unit shall be of sufficient size to withstand up to 16,000 lbs. / ft. of torque of the engine in both road and pump operating conditions. The drive unit shall be designed of ample capacity for lubrication reserve and to maintain the proper operating temperature. The drive unit shall be cast and completely manufactured and tested at the pump manufacturer factory.

The gearbox drive shafts shall be of heat treated chrome nickel steel and at least 2 3/4" in diameter, on both the input and output drive shafts. They shall withstand the full torque of the engine in both road and pump operating conditions.

The pump, both suction and discharge passages, shall be hydrostatically tested to a pressure of 600 PSI. The pump shall be fully tested at the pump manufacturer's factory to the performance spots as outlined by (NFPA) 1901, Standard for Automotive Fire Apparatus. The pump shall be free from objectionable pulsation and vibration.

The pump ratio shall be selected by the apparatus manufacturer to give maximum performance with the engine and transmission selected. The pump shall be driven by a drive line from the truck transmission. The engine shall provide sufficient horsepower and RPM to enable pump to meet and exceed its rated performance.

The pump must deliver the percentages of rated capacity at these pressures:
100% of rated capacity at 150 pounds net pressure,
100% of rated capacity at 165 pounds net pressure,
70% of rated capacity at 200 pounds net pressure,
50% of rated capacity at 250 pounds net pressure.

Since this pump is available to all bidders on an equal basis, there shall be no exception to the Hale Qmax pump specifications.

PUMP WARRANTY

Hale Products Inc. shall provide a limited manufacturer's pump warranty to be free from defects in material and

workmanship, under normal use and service, for a period of two (2) years parts and labor and parts only for years three (3) through five (5), from the date placed into service.

MECHANICAL PUMP SEAL

A mechanical seal shall be supplied on the inboard side of the pump. The mechanical seal must be two (2) inches in diameter and shall be spring-loaded, maintenance-free and self-adjusting. Mechanical seal construction shall be a carbon sealing ring, stainless steel coil spring, Viton rubber cup, and a tungsten carbide seat.

PUMP SHIFT

The drive unit shall be provided with an air pump shift system. The control valve shall be a spring loaded guard lever that locks in "Road" or "Pump" mode.

To the left of the pump shift control, there shall be two indicator lights to show the position of the pump when the control is moved to "Pump" position. A green light shall be energized when the pump shift has been completed and shall be labeled "PUMP ENGAGED"; a second green light shall be labeled "OK TO PUMP" energized when both the pump shift has been completed and the chassis automatic transmission is engaged.

A third green indicator light shall be installed adjacent to the throttle on the pump operator's panel. This light shall be labeled "Throttle Ready".

In addition to this indicator light, an additional indication shall be provided to the pump operator at the panel when the pump is ready to pump. This additional indication shall be that one (1) of the operator's panel illumination lights will only activate when the "OK TO PUMP" indicator is lit.

AIR PUMP SHIFT LOCATION

The pump shift shall be mounted in the "best fit" location as determined by the apparatus manufacture.

AUTOMATIC AIR PRIMER SYSTEM

The priming system shall be a Trident Emergency Products compressed air powered high efficiency, multi-stage, venturi based Automatic Air Prime System.

All wetted metallic parts of the priming system are to be of brass and stainless steel construction. The 12 volt primer control shall be an "automatic" type, with a pump panel three-way switch to operate an air solenoid valve. The maximum current draw shall not exceed 0.5amps during operation.

The priming components shall be mounted above the highest priming point on the suction side of the pump to permit air removal and allow for drainage. The primer shall also automatically drain when the panel control

actuator is not in operation. The inlet side of the primer shall include a brass 'wye' type strainer with removable stainless steel fine mesh strainer to prevent entry of debris into the primer body.

The automatic priming switch shall have three positions as follows:

- **"Prime"** – the lower position shall be a momentary "push to prime".
- **"Off"** -- center position
- **"Auto-Prime"** – in the upper position, a "green" LED pilot light shall be illuminated when the switch is the auto-prime position. The "Auto-Prime" operates automatically when the pump pressure drops below 20 PSIG. The primer shuts "off" automatically when the pump pressure is re-established and exceeds 20 PSIG. The "Auto" mode only operates when the fire pump is engaged.

The system shall employ an 80 PSI (5.5 bar) pressure protection valve, located on the chassis auxiliary air tank.

The primer shall be covered by a five (5) year parts warranty.

PRIMER CONTROL

There shall be one (1) automatic control to actuate the primer valve of the above specified pump body, at the operator's panel.

MAIN PUMP INLET-LEFT SIDE

A 6.00 inch (150 mm) pump manifold inlet shall be provided on the left side of the pump. The shorter style inlet shall protrude less than 2.00 inches (50 mm) away from the side panel, allowing an external valve to be connected and not protrude past the apparatus body sides while maintaining a low connection height.

The main pump inlet shall have National Standard Threads and includes a removable screen designed to provide cathodic protection for reducing deterioration in the pump.

INTAKE WATERWAY VALVE

There shall be one (1) full flowing Master Intake Butterfly Valve (MIV) installed on the apparatus and mounted directly to the pump.

The valve shall be rated at 1500 PSI and be capable of withstanding the same pressures as the pump.

The MIV shall have a built-in adjustable pressure relief valve, with a quarter turn air bleeder valve. The bleeder valve shall be plumbed to the water supply side of the intake valve, by a .75 inch (19.05 mm) NPT port, to help evacuate air from the system and avoid cavitation of the pump.

The valve shall be electrically controlled, and the controller shall be installed at the pump operator's panel.

The control shall include status lights that indicate valve positioning; open, closed, or traversing from one position to another. The valve shall have a manual override control provided and installed in an easily accessible location.

6" CHROME PLATED BRONZE CAP

There shall be one (1) 6.00 inch (150 mm) long handled chrome plated cap installed on the Steamer Inlet.

The cap shall be National Standard Thread.

MAIN PUMP INLET-RIGHT SIDE

A 6.00 inch (150 mm) pump manifold inlet shall be provided on the right side of the pump. The shorter style inlet shall protrude less than 2.00 inches (50 mm) away from the side panel, allowing an external valve to be connected and not protrude past the apparatus body sides while maintaining a low connection height.

The main pump inlet shall have National Standard Threads and includes a removable screen designed to provide cathodic protection for reducing deterioration in the pump.

INTAKE WATERWAY VALVE

There shall be one (1) full flowing Master Intake Butterfly Valve (MIV) installed on the apparatus and mounted directly to the pump.

The valve shall be rated at 1500 PSI and be capable of withstanding the same pressures as the pump.

The MIV shall have a built-in adjustable pressure relief valve, with a quarter turn air bleeder valve. The bleeder valve shall be plumbed to the water supply side of the intake valve, by a .75 inch (19.05 mm) NPT port, to help evacuate air from the system and avoid cavitation of the pump.

The valve shall be electrically controlled, and the controller shall be installed at the pump operator's panel.

The control shall include status lights that indicate valve positioning; open, closed, or traversing from one position to another. The valve shall have a manual override control provided and installed in an easily accessible location.

6" CHROME PLATED BRONZE CAP

There shall be one (1) 6.00 inch (150 mm) long handled chrome plated cap installed on the Steamer Inlet.

The cap shall be National Standard Thread.

MASTER DRAIN VALVE

A Class 1 manifold type drain valve shall be installed in the pump compartment. All pump drains shall be connected to the master drain valve. The drain valve shall be controlled from the left side lower pump house sill. The control shall be a hand wheel knob marked "open" and "closed".

The drain shall be located such that it shall not interfere with pumping operations or function such as soft suction hoses, etc. nor shall it protrude past the outer edge of the apparatus, to prevent damage to the valve.

In some cases, it is necessary to locate the master drain in a secondary location to ensure proper draining. If no lower or vertical sill exists, the drain shall be located below the bottom outside edge of the hose body near the forward most corner on the driver's side hose body. The drain shall not protrude past the outer edge of the body, thus preventing damage to the valve.

THERMAL RELIEF VALVE

A Hale TRV-120 thermal protection device shall be installed on the apparatus pump to monitor pump water temperature and open to relieve water to cool the pump.

The thermal protection devices shall be set to relieve water when the temperature of the pump exceeds 120 degrees Fahrenheit (49 degrees Celsius).

The components of the thermal protection device shall be manufactured of brass and stainless steel and be compatible with most foam concentrates. The thermal protection device shall have 1-1/4 inch NPT threads for easy adaptability to existing pump discharge openings. The discharge line shall be 3/8 inch diameter tubing vented to atmosphere or back to the booster tank. The thermal protection device shall have a hydrostatic test rating of 600 PSI (41.3 bar).

The relief valve shall discharge out below the running board.

PUMP COOLING LINE

There shall be a .38 inch (9.5 mm) line running from the pump to the water tank to assist in keeping the pump water from overheating. A valve shall be installed on the operator's panel.

PUMP ANODES

Two (2) pump anodes shall be installed in the pumping system, one (1) on the discharge side and one (1) on the suction side, to prevent damage from galvanic corrosion within the pump system.

STAINLESS STEEL PLUMBING

All auxiliary suction and discharge plumbing related fittings, and manifolds shall be fabricated with a minimum of 3.00 inch (77 mm), or greater as required by design, schedule 10 stainless steel pipe; brass or high pressure flexible piping with stainless steel couplings. Galvanized components and/or iron pipe shall NOT be accepted to ensure long life of the plumbing system without corrosion or deterioration of the waterway system. Where waterway transitions are critical (elbows, tees, etc.), no threaded fittings shall be allowed to promote the smooth transition of water flow to minimize friction loss and turbulence. All piping components and valves shall be non-painted, unless otherwise specified. All piping welds shall be wire brushed and cleaned for inspection and appearance.

The high pressure flexible piping shall be black SBR synthetic rubber hose with 300 PSI working pressure and 1200 PSI burst pressure for flexible piping sizes 1.50 inches (38 mm) through 4.00 inches (100 mm). Sizes .75 inch (19 mm), 1.00 inch (25 mm) and 5.00 inches (125 mm) are rated at 250 PSI working pressure and 1000 PSI burst pressure. All sizes are rated at 30 in HG vacuum. Reinforcement consists of two plies of high tensile strength tire cord for all sizes and helix wire installed in sizes 1.00 inch (25 mm) through 5.00 inches (125 mm) for maximum performance in tight bend applications. The material has a temperature rating of -40 degrees Fahrenheit to +210 degrees Fahrenheit.

The stainless steel full flow couplings are precision machined from high tensile strength stainless steel. All female couplings are brass. Mechanical grooved and male .75 inch (19 mm) and 1.00 inch (25 mm) couplings are brass. A high tensile strength stainless steel ferrule with serrations on the I.D. is utilized to assure maximum holding power when fastening couplings to hose.

PUMP HOUSE LINE PROTECTION

All drain lines for the discharges, suctions, ABS discharge gauge lines and any other appropriate connections in the pump house area shall have a protective cover provided on the lines in the required areas of the lines to prevent the lines from rubbing on any other components in the pump house area.

All drain lines, ABS lines, high pressure discharge lines and electrical wiring in the pump house area shall be properly and neatly routed, wire tied, and rubber coated "P" clamped, to keep the items secured.

DRAIN VALVES

An Innovative Controls 3/4" quarter turn drain valve shall be included on each discharge, gated intake, and steamer valve (if applicable). A side stem, long stroke chrome plated lift handle shall be provided on the drain valve to facilitate use with a gloved hand. The drain valve shall have an ergonomically designed handle with a recessed verbiage tag area easily read by the operator before opening.

The drain valve shall be connected to the valve with a flexible hose that is routed in such a manner as to assure complete drainage to below the apparatus.

LEFT SIDE INLET

There shall be one (1) gated suction inlet with .75 inch (19mm) bleeder installed on the left side of the apparatus with the following specified components.

INTAKE VALVE

A 2.50 inch (65 mm) Elkhart Brass Unibody valve model EB25 with stainless steel ball and dual self- adjusting polymer seats.

The valve shall be capable of bi-directional flow and incorporating a self-locking ball. The valve shall not require lubrication of seats or other internal waterway components and will be capable of swinging out of the waterway for maintenance.

INTAKE VALVE CONTROL

The intake control valve shall be a 'swing out type' direct operation manual lever actuator at the valve.

INTAKE PLUMBING

The plumbing shall consist of 2.50 inch (65 mm) piping and shall incorporate a manual drain control installed below the pump area for ease of access.

SUCTION/INTAKE TERMINATION

The termination shall include the following components:

One (1) 2.50 inch (65 mm) NST swivel female straight adapter with screen

One (1) 2.50 inch (65 mm) self-venting plug, secured by a chain

INLET LOCATION

The inlet shall be located on the pump panel in the rearward position.

LEFT SIDE DISCHARGE

There shall be two (2) gated discharges installed on the left side of the apparatus with the following specified components.

DISCHARGE VALVE

A 2.50 inch (65 mm) Elkhart Brass model rack and sector actuated valve.

DISCHARGE PLUMBING

The plumbing shall consist of 2.50 inch (65 mm) piping and shall incorporate a manual drain control installed below the pump area for ease of access.

DISCHARGE TERMINATION

The discharge termination shall include the following components:

One (1) 2.50 inch (65 mm) Male NST adapter

One (1) 2.50 inch (65 mm) NST female swivel by male with 45 degree polished elbow

One (1) 2.50 inch (65 mm) female self-venting cap, secured by a chain

RIGHT SIDE DISCHARGE

There shall be one (1) gated discharge installed on the right side of the apparatus with the following specified components.

DISCHARGE VALVE

A 2.50 inch (65 mm) Elkhart Brass Unibody valve model EB25 with stainless steel ball and dual self-adjusting polymer seats.

The valve shall be capable of bi-directional flow and incorporating a self-locking ball. The valve shall not require lubrication of seats or other internal waterway components and will be capable of swinging out of the waterway for maintenance.

DISCHARGE VALVE CONTROL

The discharge shall be controlled from the pump operator's panel location.

DISCHARGE PLUMBING

The plumbing shall consist of 2.50 inch (65 mm) piping and shall incorporate a manual drain control installed below the pump area for ease of access.

DISCHARGE TERMINATION

The discharge termination shall include the following components:

One (1) 2.50 inch (65 mm) Male NST adapter

One (1) 2.50 inch (65 mm) NST female swivel by male with 45 degree polished elbow

One (1) 2.50 inch (65 mm) female self-venting cap, secured by a chain

RIGHT SIDE MASTER DISCHARGE

There shall be one (1) master discharge installed on the right side of the apparatus provided with the following specified components.

DISCHARGE VALVE

A 3.00 inch (77 mm) Elkhart Brass Unibody valve model EB30 with stainless steel ball and dual self-adjusting polymer seats.

The valve shall be capable of bi-directional flow and incorporating a self-locking ball. The valve shall not require lubrication of seats or other internal waterway components and will be capable of swinging out of the waterway for maintenance.

DISCHARGE VALVE CONTROL

The discharge shall be controlled from the pump operator's panel location.

DISCHARGE PLUMBING

The plumbing shall consist of 3.00 inch (77 mm) piping and shall incorporate a manual drain control installed below the pump area for ease of access.

DISCHARGE TERMINATION

The discharge termination shall include the following components:

One (1) 3.00 inch (77 mm) NST adapter

One (1) 3.00 inch (77 mm) NST female swivel by 5.00 inch (125 mm) Storz with 30 degree elbow

One (1) 5.00 inch (125 mm) Storz cap, secured by a chain

LEFT REAR DISCHARGE

There shall be one (1) gated discharge installed on the left rear of the apparatus with the following specified

components.

DISCHARGE VALVE

A 3.00 inch (77 mm) Elkhart Brass Unibody valve model EB30 with stainless steel ball and dual self-adjusting polymer seats.

The valve shall be capable of bi-directional flow and incorporating a self-locking ball. The valve shall not require lubrication of seats or other internal waterway components and will be capable of swinging out of the waterway for maintenance.

DISCHARGE VALVE CONTROL

The discharge shall be controlled from the pump operator's panel location.

DISCHARGE PLUMBING

The plumbing shall consist of 3.00 inch (77 mm) Class 1 high pressure vapor hose, stainless steel couplings and/or stainless steel piping, and shall incorporate a manual drain control installed below the pump area for ease of access.

DISCHARGE TERMINATION

The discharge termination shall include the following components:

One (1) 3.00 inch (77 mm) male NST adapter

One (1) 3.00 inch (77 mm) NST female by 2.50 inch (65 mm) male with 45 degree elbow

One (1) 2.50 inch (65 mm) female self-venting cap, secured by a chain

CROSSLAY AREA

The crosslay hose beds shall be located in the upper portion of the pump compartment.

The crosslay area shall span the entire width of the apparatus pump module. Removable flooring shall be provided in the hose bed area for drainage.

SINGLE STACK CROSSLAYS

The crosslay area shall be constructed with a minimum of 25.00-inch (635mm) approximate depth for laying a single stack of each hose size as specified below.

Chiksan swivels shall be installed just below the floor of each crosslay bed just high enough for hose couplings to be accessed and tightened on to chiksans. Chiksan swivels shall swing from left to right to allow attached hose to be deployed from either side.

FIXED CROSSLAY DIVIDERS WITH NO HAND HOLD CUTOUTS

Each crosslay divider acting as a hose bed separator shall be fabricated of .188-inch smooth aluminum and shall have a dual-action sanded finish. Each divider shall NOT have hand hold cutouts provided.

1 3/4" CROSSLAY

A crosslay with the following specified components shall be provided for up to 200 feet (60 m) of 1.75 inch (44.4 mm) hose.

There shall be a total of two (2) provided.

DISCHARGE VALVE

A 2.00 inch (50 mm) Elkhart Brass Unibody valve model EB20 with stainless steel ball and dual self-adjusting polymer seats.

The valve shall be capable of bi-directional flow and incorporating a self-locking ball. The valve shall not require lubrication of seats or other internal waterway components and will be capable of swinging out of the waterway for maintenance.

DISCHARGE VALVE CONTROL

The discharge shall be controlled from the pump operator's panel location.

DISCHARGE PLUMBING

The plumbing shall consist of 2.00 inch (50 mm) piping and shall incorporate a manual drain control installed below the pump area for ease of access.

DISCHARGE TERMINATION

The discharge termination shall include the following components:

One (1) 2.00 inch (50 mm) NPT x 1.50 inch (38 mm) NST brass chiksan swivel

CROSSLAY TRIM

Brushed stainless steel trim shall be installed at the openings on the bottom and on each side of the crosslay

hose bed area. The trim shall reduce the chaffing of the hose jacket on the edges of the bay area.

D&S CUSTOM CROSSLAY COVER

A D&S custom brand crosslay hose bed cover shall be provided and installed on the top and sides of the crosslay area. The cover shall be manufactured from 22oz hypalon material with a grab tensile strength of 500 pounds.

The top cover shall be held in place by an extrusion installed across the front edge of the crosslay hose bed and with Velcro across the rear edge. The sides of the crosslay cover shall be secured by means of elastic shock cord passing thru brass grommets. Hooks shall be installed at the lower corners to secure the cover to the apparatus.

CROSSLAY TOP COVER COLOR

The crosslay hose bed cover shall be black in color.

LED CROSSLAY HOSE BED FLOOD LIGHT

There shall be one (1) FireTech Model WL2000 installed atthe rear area of the crosslays to provide the NFPA required lighting. Light to be activated by work light switch in cab.

CROSSLAY LIGHT ACTIVATION

The crosslay light shall be activated by the ground light switch in the cab and the setting of the park brake.

2 1/2" PRE-CONNECT

One (1) hose bed pre-connect with the following specified components shall be provided for 2.50 inch (63.5 mm) hose on the left side of the hose bed.

DISCHARGE VALVE

A 2.50 inch (65 mm) Elkhart Brass Unibody valve model EB25 with stainless steel ball and dual self-adjusting polymer seats.

The valve shall be capable of bi-directional flow and incorporating a self-locking ball. The valve shall not require lubrication of seats or other internal waterway components and will be capable of swinging out of the waterway for maintenance.

DISCHARGE VALVE CONTROL

The discharge shall be controlled from the pump operator's panel location.

DISCHARGE PLUMBING

The plumbing shall consist of 2.50 inch (65 mm) piping and shall incorporate a manual drain control installed below the pump area for ease of access.

DISCHARGE TERMINATION

The discharge termination shall include the following components:

One (1) 2.50 inch (65 mm) NPT x 2.50 inch (65 mm) MNST chrome plated brass fitting

PRE-CONNECT LOCATION

The discharge shall terminate to the left side lower corner of the hose bed header wall approximately 8.00 inches, on center, above the hose bed floor.

DECK GUN MONITOR WATERWAY

There shall be one (1) deck gun monitor waterway installed on the apparatus with the following components.

DISCHARGE VALVE

A 3.00 inch (77 mm) Elkhart Brass electrically actuated Unibody valve model EB30 series with stainless steel ball and dual self-adjusting polymer seats.

The valve shall be capable of bi-directional flow and incorporating a self-locking ball. The valve shall not require lubrication of seats or other internal waterway components and will be capable of swinging out of the waterway for maintenance.

The valve shall be operated using an electric gear drive actuator. The actuator shall be quickly adjustable to one of four positions and open or close in less than 5 seconds. Valve travel shall be limited by an integral sensor with current limit back-up.

VALVE CONTROLLER

The electric valve shall be operated with a Unibody Electric controller model Apex100 located on the pump operator's panel.

DELUGE PLUMBING

The deluge waterway shall consist of 3.00 inch (77 mm) piping and shall be drained with an auto-drain located at the lowest point of the waterway plumbing if required.

DELUGE PIPE LOCATION

The deluge pipe shall be located up through the pump compartment, at the center location.

DECK GUN MONITOR PACKAGE

One (1) Elkhart Cobra EXM model #7200 1250 GPM electric controlled monitor shall be provided with the apparatus. The deck gun shall have a maximum pressure at 500 psi (34.5 bar) with an inlet flange of 3.00 inches (77 mm) and outlet of 2.50 inches (65 mm).

The deck gun shall be mounted to the deluge waterway with a top mount adapter.

If the deck gun is not properly stowed and the parking brake is released, it shall activate the hazard light in the cab to alert the crew.

NOZZLE

One (1) Elkhart model #SM-1250E, 350-1250 GPM nozzle with 3.50 inch (89 mm) inlet and 229 feet (69.80 m) effective reach shall be provided with the apparatus.

MONITOR CONTROL

The monitor shall be provided with an EXM model #7015 handheld tethered control unit for operation.

CONTROLLER LOCATION

The location of the mounting bracket for the handheld controller shall be in the L1 compartment.

EXTENDER

There will be one (1) Elkhart Extender model 8598 provided and installed on the deluge pipe.

The Extender is electrically actuated with a push button control at the pump operator's panel.

If the Extender is not properly stowed and the parking brake is released, it shall activate the hazard light in the cab to alert the crew.

WATER WASHDOWN SYSTEM

A discharge from the pump shall be provided with a garden hose outlet suitable for simple wash-down operations.

The system shall be activated using an illuminated rocker switch controlling a 1.00 inch ball valve at the tank and a 12 volt pump. The system shall be capable of a minimum of 5 GPM and 70 PSI. The plumbing to the pump shall contain a strainer connected to the master drain to prevent freezing. The discharge shall terminate with garden hose threads.

The discharge shall be labelled "NON-POTABLE WASHDOWN WATER".

WASHDOWN SYSTEM LOCATION

The washdown system shall be located on the driver side pump panel.

BOOSTER REEL

There shall be an electric rewind booster reel with automatic brake installed on the apparatus. The booster reel shall have a capacity to handle 1.00-inch diameter (25.4 mm) booster hose.

There shall be a manual rewind device provided. A manual crank shall be mounted adjacent to booster reel.

BOOSTER HOSE

The reel shall come equipped with 175 feet (53 m) of 800 psi (55 BAR) booster hose.

The hose shall be provided in one (1) 175 foot (53 m) length with hardcoat aluminum couplings.

REEL FINISH

The hose reel specified shall be non-polished aluminum.

HOSE REEL VALVE

The reel shall be plumbed to the pump with a 1.50 inch (38.10 mm) quarter turn Elkhart valve and 1.00 inch (25.40 mm) high pressure hose and couplings.

The valve shall be controlled from the operator's panel.

REWIND ACTIVATION

An electric rewind switch shall be located adjacent to the booster reel. The switch shall have a weather resistant rubber cover and a label indicating its function.

The switch shall be labeled "HOSE REEL".

HOSE REEL LOCATION

The hose reel shall be mounted in a belly pan compartment at the rear of the apparatus, under the rear dump. The compartment shall be constructed of the same materials as the body.

The compartment shall be built around the booster reel and frame rails to help protect the reel from road debris.

There shall be a drop down door installed. The door shall be fabricated of material matching the rear overlay and shall have reflective chevron applied matching the rear of the apparatus.

The door shall be hinged at the bottom and secured by two (2) push button latches, one (1) on each side, located at the top of the door.

If the door is not properly closed and the parking brake is released, it shall activate the "hazard light" in the cab to alert the crew.

HOSE REEL ROLLERS

There will be two (2) Bell Roller Assemblies provided and installed, one (1) on each side of the drop down door, to allow hose payout to the right side of the apparatus.

HOSE REEL BLOW OUT

There shall be an air "blowout" system provided and installed on the apparatus. The air blow out system shall be connected to the chassis air brake system. A check valve shall be installed between the chassis system and the reel blow out system. A ¼ turn manual control valve shall be installed on the pump operator's panel for the air blow out system.

The valve shall be labeled "REEL BLOW OUT".

BOOSTER REEL GAUGE

There shall be no pressure gauge supplied for the Booster Reel.

DISCHARGE GAUGES

An (Innovative Controls) TC 3010xxxx Series nominal 2.50 inch gauge shall be supplied for reading the pressure of each discharge greater than 1.50 inches (38 mm) in diameter, unless otherwise specified.

A KEM-X socket saver diaphragm, located in the stem, eliminates freeze-up by preventing water from entering and/or clogging the gauge internals while containing a low temperature instrument oil that fills and protects the socket and the bourdon tube.

The molded glass-filled Nylon 66 case will not corrode and includes a scratch-resistant molded polycarbonate lens with O-ring seal. The gauge shall withstand pressures up to 100psi over gauge range with operation from –40° F to +160°F.

GAUGE SCALE

Each gauge shall be marked for reading a pressure range of 0-400 PSI.

GAUGE FACE COLOR

Each gauge shall have black markings on a white face.

BEZELS FOR 2.5" DISCHARGE GAUGES

Highly-polished stainless steel Innovative Control bezels shall be provided around each of the 2.50 inch (65 mm) discharge pressure gauges to prevent corrosion and protect lenses and gauge cases. The gauges shall be installed into decorative chrome-plated mounting bezels that incorporate valve identifying verbiage and/or color labels.

TANK TO PUMP LINE

The connection between the tank and the pump shall be capable of the flow recommendations as set forth in (NFPA) 1901, Standard for Automotive Fire Apparatus, latest revision and shall be tested to those standards when the pump is being certified.

One (1) non-collapsible flexible hose and valve shall be incorporated into the tank to pump plumbing to allow movement in the line as the chassis flexes to avoid damage during normal road operation. Four (4) inch stainless steel schedule 10 piping shall be used to complete the connection from the tank to pump valve to the water tank.

TANK TO PUMP CHECK VALVE

There shall be a tank to pump check valve, conforming to NFPA standard requirements to prevent water from back flowing at an excessive rate if the pump is being supplied from a pressurized source. The check valve shall be mounted as an integral part of the pump suction extension. A hole up to .25 inch (6.00 mm) is allowable in the check valve to release steam or other pressure buildup so that the void between the valve and check valve may drain of water that could be subject to freezing.

TANK TO PUMP VALVE

A 3.00 inch (77 mm) Akron Brass 8000 series swing-out valve with a stainless steel ball.

VALVE CONTROL

The valve shall be controlled from the pump operator's panel location.

TANK FILL LINE

One (1) 2.00 inch (50.80 mm) tank fill/recirculating line shall be installed from the pump directly to the booster tank.

TANK FILL VALVE

A 2.00 inch (50 mm) Akron Brass 8000 series swing-out valve with a stainless steel ball.

VALVE CONTROL

The valve shall be controlled from the pump operator's panel location.

DIRECT TANK FILL

There shall be an external direct tank fill port installed on the rear of the apparatus.

A total quantity of two (2) shall be provided with the following specified components:

TANK FILL VALVE

A 3.00 inch (77 mm) Akron Brass 8000 series swing-out valve with a stainless steel ball.

VALVE CONTROL

The valve shall be controlled with a 'swing-type' lever directly attached to the valve. The lever shall operate just over 90 degrees of travel to provide full open / full closed positioning of the valve.

DIRECT TANK FILL PLUMBING

The plumbing shall consist of 3.00-inch (77 mm) piping.

DIRECT TANK FILL TERMINATION

The direct tank fill shall terminate with a 3.00-inch Storz 30-degree elbow fitting and cap.

DIRECT TANK FILL LOCATION

There shall be a total of two (2) rear direct tank fills located on the rear of the apparatus. One (1) located on the

left rear and right rear of the apparatus rear vertical body panels.

== Tanker Dryside - Body - 10.220 06/06/22 ==

TRI-MAX™ *Space Frame Body* - ALUMINUM

The apparatus body shall be a Tri-Max™ **Space Frame** design, which serves as an incredibly durable, structural body framework. This framework acts as a series of beams and columns that support and protect the body and its contents. The space frame design provides maximum torsional resistance and load capabilities. The entire space frame structure shall be welded together utilizing an A.W.S. Certified welding procedure.

The space frame design shall also be required because it provides energy absorbing impact zones in the structure, thus providing increased safety to the rest of the apparatus and personnel on board. Documented proof of this extra safety shall be required upon request.

The Tri-Max™ body structure shall consist entirely of closed section members, except where the body is mounted to the chassis. Closed section members (such as square, rectangular, triangular, or round tubes) are required because they provide maximum strength and torsion rigidity. This solid tubular structural style of design ultimately adds longevity to the body structure by eliminating flex and twists in material, creating less stress and fatigue. Body designs that use independent sub-frames will not be acceptable.

BODY STRUCTURE MEMBERS

The space frame body shall have triangular shaped structural members in certain areas of the body. This shape is required to prevent loss of useable compartment space. Other body structure members shall be square or rectangular. Each structural member will have a nominal outside dimension of 2.50 inches (63.50 mm) in at least one direction. The body shall be designed for maximum strength to weight ratio, therefore the gauge of sheet metal and structural members varies from .125 inches (3.18 mm) to .250 inches (6.35 mm) throughout, dependent on the design requirement.

BODY MATERIAL TYPE

All body structural members shall be Aluminum 6061-T6 alloy material. All .125 inch (3.18 mm) sheet material shall be Aluminum Alloy 5052-H32, and .250 inch (6.35 mm) sheet materials shall be Aluminum Alloy 3003. These alloys are required because it provides optimum all-around performance for strength, manufacturing properties, and corrosion resistance.

ECK® ANTI-CORROSION PROCESS

Absolutely no dissimilar metals shall be used in the body and its supporting substructure without being separated by Eck®, which prevents corrosion by providing a barrier between dissimilar metals, sealing out moisture and absorbing energy created by a dissimilar metal reaction.

FRONT BODY COMPARTMENT WALLS

The front compartment walls of both forward most compartments shall be sheet finished. No overlay material shall be visible from the interior of the compartments.

REAR BODY COMPARTMENT WALLS

The rear compartment walls of both rearward most compartments shall be sheet finished. No overlay material shall be visible from the interior of the compartments. Access panels from the rear walls shall be strategically placed to ensure access to the rear taillight clusters for any servicing that may be completed.

COMPARTMENT TOP

The top of the compartments shall be an integral portion of the body. No overlay material shall be visible from the interior of the compartments.

COMPARTMENT FLOORS

The body compartments shall be enclosed with aluminum sheet metal as specified above. The compartment floors shall have a 1.00 inch (25.40 mm) lip downward at the door opening side of the compartment. This lip shall integrate with a structural member on the bottom edge and form a "sweep-out" compartment. This design shall also allow for a structural flush fitting door frame and a complete door/weather seal.

COMPARTMENT LOAD CAPACITY

Each compartment shall have a minimum of one additional structural compartment floor support centered on the underside of the compartment floor. This additional member shall be integral with the rest of the body structure. Each compartment must be designed, and 3rd party analyzed to carry a working load of:

Full depth side compartment: 1,000 lbs (453.59 kg) per compartment
Half depth side compartment: 750 lbs (340.19 kg) per compartment
Rear center compartment (if applicable): 1,500 lbs (680.39 kg)

NOTE: These values are for design purposes only for individual compartment construction and are not meant to be used as an actual overall weight rating for equipment load per compartment for the specified apparatus. The apparatus shall be engineered such that the completed unit, when loaded to its estimated in-service weight, shall comply with the gross axle weight ratings {GAWR}, the overall gross vehicle weight rating {GVWR}, and the chassis manufacturer's load balance guidelines per NFPA.

EXTERIOR HOSE BED WALLS

The exterior hose bed walls shall be an integral portion of the body. The wall shall give a smooth exterior look and finish with no vertical supports tubing visible from the exterior of the truck.

FASTENERS

All bolts and nuts used in the finish construction of the apparatus shall be coated stainless steel which helps prevent dissimilar metal electrolytic reaction and corrosion. Any bolt extending into a compartment or into the hose bed area shall have an acorn nut attached or be protected in such manner where sharp edges are avoided.

FINITE ELEMENTS ANALYSIS

The proposed body design must have completed a review and analysis by a legitimate 3rd party engineering firm. At a minimum, the 3rd party must have conducted a computer model finite element analysis of the proposed design. The analysis is to include real world working load scenarios. Analysis to cover both static and dynamic situations must be completed. The purpose of the finite element analysis is to ensure proper design of the apparatus body, and that it is capable of carrying the typical fire apparatus loads and those specified by NFPA for equipment. The analysis process must conclude that the body structure is properly designed and manufactured to provide longevity under normal conditions. The 3rd party must also validate the manufacturing processes are consistent with the design and analysis performed. Proof of having completed this testing must be submitted with the bid.

PAINT SPECIFICATIONS

All bright metal fittings, if unavailable in stainless steel, shall be heavily chrome plated.

Critical body and sub-frame area which cannot be primed after assembly shall be pre-painted.

All welded metal surfaces shall be ground to a smooth surface prior to a degreasing and high pressure, high temperature phosphatizing process. The entire surface shall be sprayed with a non-chromate sealing compound to prevent formulation of stains or flash rust on previously phosphatized parts.

The paint applied to the apparatus shall be Akzo Nobel, Sikkens brand, LVBT650 basecoat, applied throughout a multi-step process including at least two coats of each color and clear coat finish.

The coating shall be an infra-red, baked air dried. The coatings shall provide full gloss finished suitable for application by high-pressure airless or conventional low pressure air atomizing spray.

The coatings shall not contain lead, cadmium or arsenic. The polyisocyanate component shall consist of only aliphatic isocyanates, with no portion being aromatic isocyanates in character. The solvents used in all

components and products shall not contain ethylene glycol mono-ethyl ethers or their acetates (commercially recognized as cello solves), nor shall they contain any chlorinated hydrocarbons. The products shall have no adverse effects on the health or nor present any unusual hazard to personnel when used according to manufacturer's recommendations for handling and proper protective safety equipment, and for its intended use.

The coating system, as supplied and recommended for application, shall meet all applicable federal, state and local laws and regulations now in force or at any time during the courses of the bid.

The manufacturer shall supply (upon request) for each product and component of the system, a properly complete OSHA "Safety Data Sheet".

The following documents of the issue in effect on the date of the invitation to quote form a part of this document to the extent specified herein:

Federal Standards: Number 141A and 141B paint, varnish, lacquer and related material: methods of inspection, sampling, and testing.

Military Standard: MIL-C 83486B Coating, Urethane, Aliphatic Isocyanates, for Aerospace applications.

Industry Methods and Standards: ASTM Method of Analysis (American Society for testing and Materials). BMS 10-72A (Boeing Material Specifications).

The entire exterior body structure (excluding roll-up doors) shall receive the primer coats and the finish coats. The apparatus body will be painted in a down draft type paint booth to reduce dust, dirt or impurities in the finish paint. The painted surfaces shall have a finish with no runs, sags, craters, pinholes or other defects. The coating will meet the following test performance properties as a minimum standard.

BODY PAINT COLOR

The apparatus body shall be painted {" MUST SPECIFY "}.

SUPERLINER COMPARTMENT FINISH

The compartment interiors shall be coated with Superliner.

COMPARTMENT FINISH COLOR

The Superliner Color shall be Medium Gray.

UNDERCOATING

The underside of the apparatus body shall be cleaned and prepared for the application of a sprayed on automotive type undercoating for added corrosion resistance.

The undercoating is to be of a quick dry rubberized, solvent based coating that is (black) in color. Resists rust and abrasion as it seals out dust and moisture.

The application does not include any additional underbody, chassis or body cavity components.

STRUCTURAL BODY WARRANTY

A structural Aluminum body warranty shall be provided by the apparatus manufacturer for products of its manufacture to be free from defects in material and workmanship under normal use and service for a period of ten (10) years.

PAINT WARRANTY

A Prorated Paint Warranty shall be provided by the apparatus manufacturer for products of its manufacture to be free from defects in material and workmanship, under normal use and service, for a period of ten (10) years.

DIAMOND PLATE FRONT OVERLAYS

The entire front face of the apparatus body shall have aluminum diamond plate overlays installed.

RAW ALUMINUM REAR OVERLAYS

The entire rear face of the apparatus body shall have raw aluminum overlays installed for the installation of chevron striping.

All overlay materials shall be coated with 3M adhesive sealant on the back portion to provide an insulating barrier between dissimilar metals.

FRONT CORNER TRIM 1/8" ALUMINUM DIAMOND PLATE

The front of the apparatus body, vertical wall overlay shall be integrated with a 1/8" aluminum diamond plate 1.00 inch x 1.00 inch corner trim pieces for edge protection. The vertical edge trim piece shall extend from the top to bottom and shall be fastened at a minimum of three locations, top, middle, and bottom.

REAR CORNER TRIM 1/8" ALUMINUM DIAMOND PLATE

The rear face of the apparatus body, vertical wall overlays shall be installed with a .125 inch aluminum diamond plate 1.00 inch by 1.00 inch corner trim piece, for edge protection. The vertical edge trim piece shall extend from the top to bottom and shall be fastened at a minimum of three locations, top, middle, and bottom.

The vertical edge trim piece that is protecting the chevron striping surface or that is utilized for the purpose of striping, shall be secured utilizing fasteners only.

CATWALKS

The catwalks shall be constructed with materials of a non-slip .125 inch embossed aluminum diamond plate.

VIBRA-TORQ™ BODY MOUNTING SYSTEM

The entire body module assembly shall be mounted so that it "floats" above the chassis frame rails exclusively with Vibra-Torq™ torsion isolator assemblies to reduce the vibration and stress providing an extremely durable body mounting system.

The body substructure shall be mounted above the frame to allow independent flexing to occur between the body and the chassis. Each assembly shall be mounted to the chassis frame rails with steel, gusseted mounting brackets. Each bracket shall be powder coated for corrosion resistance. Each body mount bracket shall be mounted to the side chassis frame flange with two 5/8"-UNC Grade 5 HHCS.

Each assembly shall have a two-part rubber vibration isolator. The isolator shall be of a specific durometer to carry the necessary loads of the apparatus body, equipment, tank, water, and hose. The quantity of mounts utilized shall correspond directly to the anticipated weight being supported. Certain assemblies shall also incorporate a torsion spring. Helical coil springs shall be incorporated into specific mounts in tandem with the rubber isolators to minimize the stress absorbed by the body caused from chassis frame rail flexing.

There shall be no welding to the chassis frame rail sides, web or flanges, or drilling of holes in the top or bottom frame flanges between axles. All body to chassis connections shall be bolted so that in the event of an accident, the body shall be easily removable from the truck chassis for repair or replacement.

Because of the constant vibration and twisting action that occurs in chassis frame rails and suspension, the torsion mounting system is required to minimize the possibility of premature body structural failures. The Vibra-Torq™ body mounting system shall have a lifetime warranty.

BODY STRUCTURE WIDTH

The width of the apparatus body from the outside of the left compartments to the outside of the right compartments shall be 99.00 inch (2.51 m) excluding any attached peripherals such as rub rails, fenderettes, grab handles, etc.

COMPARTMENT VENTILATION

To allow for proper air circulation & flow, each compartment shall have a venting route. The venting locations shall be determined by best-fit for each body configuration. Chrome louvered plate vents shall be installed appropriately on the compartment interior walls.

COMPARTMENTATION

The following compartments shall be supplied on the apparatus:

Compartment "L1"

There shall be one (1) full height compartment ahead of the rear wheels, directly behind the chassis cab on the left side of the apparatus.

The approximate interior dimensions of this compartment shall be 60.00 inches wide by 69.00 inches high with an upper depth of 12.50 inches and a lower depth of 25.50 inches.

The framed opening shall measure approximately 57.50 inches wide by 65.00 inches high.

The compartment will have approximately 44.84 cubic feet of space.

Compartment "L2"

There shall be one (1) compartment above the rear wheels, on the left side of the apparatus.

The approximate interior dimensions of this compartment shall be 56.75 inches wide by 35.00 inches high with a depth of 12.50 inches.

The framed opening shall measure approximately 56.75 inches wide by 31.00 inches high.

The compartment will have approximately 14.37 cubic feet of space.

Compartment "L3"

There shall be one (1) compartment above the rear wheels, on the left side of the apparatus.

The approximate interior dimensions of this compartment shall be 56.75 inches wide by 35.00 inches high with a depth of 12.50 inches.

The framed opening shall measure approximately 56.75 inches wide by 31.00 inches high.

The compartment will have approximately 14.37 cubic feet of space.

Compartment "L4"

There shall be one (1) full height compartment behind the rear wheels, on the left side of the apparatus.

The approximate interior dimensions of this compartment shall be 28.00 inches wide by 69.00 inches high with an upper depth of 12.50 inches and a lower depth of 25.50 inches.

The framed opening shall measure approximately 25.50 inches wide by 65.00 inches high.

The compartment will have approximately 20.93 cubic feet of space.

Compartment "R1"

There shall be one (1) full height compartment ahead of the rear wheels, directly behind the chassis cab on the right side of the apparatus.

The approximate interior dimensions of this compartment shall be 60.00 inches wide by 69.00 inches high with an upper depth of 12.50 inches and a lower depth of 25.50 inches.

The framed opening shall measure approximately 57.50 inches wide by 65.00 inches high.

The compartment will have approximately 44.84 cubic feet of space.

Compartment "R2"

There shall be one (1) compartment above the rear wheels, on the right side of the apparatus.

The approximate interior dimensions of this compartment shall be 56.75 inches wide by 35.00 inches high with a depth of 12.50 inches.

The framed opening shall measure approximately 56.75 inches wide by 31.00 inches high.

The compartment will have approximately 14.37 cubic feet of space.

Compartment "R3"

There shall be one (1) compartment above the rear wheels, on the right side of the apparatus.

The approximate interior dimensions of this compartment shall be 56.75 inches wide by 35.00 inches high with a depth of 12.50 inches.

The framed opening shall measure approximately 56.75 inches wide by 31.00 inches high.

The compartment will have approximately 14.37 cubic feet of space.

Compartment "R4"

There shall be one (1) full height compartment behind the rear wheels, on the right side of the apparatus.

The approximate interior dimensions of this compartment shall be 28.00 inches wide by 69.00 inches high with an upper depth of 12.50 inches and a lower depth of 25.50 inches.

The framed opening shall measure approximately 25.50 inches wide by 65.00 inches high.

The compartment will have approximately 20.93 cubic feet of space.

FLUSH FITTING HINGED DOOR CONSTRUCTION

All doors shall be a minimum of 2.00 inch (50.80 mm) thick with a return flange on the interior of the door to provide a mounting surface for the attachment of a door liner. Each door will have a weep hole to prevent interior moisture build up.

All door hinges shall be polished 14 gauge 304 stainless steel with a .25 inch (6.35 mm) diameter stainless steel pin. The hinges shall be mounted to provide easy door adjustment in the future without removing the door liner. The vertically hinged doors shall each have a stainless steel spring loaded door holder. The horizontally top hinged doors shall have a gas charged shock to hold the door in the up position.

Door handles shall be polished stainless steel D-ring style that are spring loaded and bidirectional. They shall be mounted on the doors of compartments with a single door or on the primary door of a compartment with vertical double doors. The latches shall attach to the door assembly without any fasteners penetrating the door skin material, with a rubber gasket provided between the D-ring handle and the door skin. The door latch assembly must be completely enclosed by the door assembly and inner door pan, to prevent damage from shifting equipment carried in the compartment.

The door latches to open the secondary door of a compartment with vertical double doors shall be "lever" style, located on the backside of the door. Once the primary door is opened, the handle shall be easily visible. Full height secondary doors will have the latch at the bottom of the door with all others door heights having the latch at the top of the door.

All hinged doors shall be a "flush" style to provide a flat appearance of the body side. The body shall form a 2.00 inch (50.80 mm) deep frame on all four sides to receive the door, preventing any door overlap. A clip on rubber gasket shall be mounted on the door frame, providing a tight seal to prevent moisture and debris from entering the compartment. If catwalk(s) are specified for above the side compartment door openings, the design shall incorporate an outward bent flange to deflect moisture away from the door opening. If design does not allow for this, such as flush upper body panels and the top is capped, 'J' trim channel pieces shall be adhered along the top edge of the door openings where hinged doors are specified.

The doors shall be made of the same material type as the body construction. The door liners shall be a brushed finish.

Lap type doors which utilize an outer lip to provide a weather seal, shall not be acceptable.

SIDE COMPARTMENT DOOR MATERIAL

All horizontal and vertical side compartment doors shall be fabricated of 5052 aluminum and finish painted to match the body.

DOOR LINER MATERIAL

The interior door liners shall be fabricated of 5052 smooth aluminum and shall be dual-action sanded finish.

DOOR OPEN INDICATOR

Each flush door body compartment shall be provided with an auto door switch. The switch shall be installed on the primary compartment door and activate the open door indicator when the door is opened.

The switch shall be of a magnetic style reed indicator type. Each switch shall be hermetically sealed rated to 10,000,000 cycles. The contact and magnetic housing shall snap-lock in the body material, one on the body and one in the door.

If the door is not properly closed and the parking brake is released, it shall activate the "hazard light" in the cab to alert the driver.

SILL PLATES

Brushed stainless steel sill plates shall be installed at the bottom of each body compartment door opening.

ROM COMPARTMENT STRIP LIGHTING

ROM LED strip lighting shall be installed in the compartments as specified. Each light strip shall be of maximum length available to fit the opening.

The lighting in each compartment shall be on a separate circuit, and only illuminate when the compartment doors are open.

One (1) ROM LED strip light shall be installed in four (4) over wheel compartment(s).

One (1) ROM LED strip light shall be installed in four (4) full height compartment(s).

COMPARTMENT LIGHTING ACTIVATION

Each compartment light shall be activated with the ignition, park brake and the respective compartment door open switch

REAR TAILBOARD AND BEAVER TAILS

The rear of the apparatus body shall have "beaver tails", or "tail-fins" added. The beaver tails shall be constructed of the same materials as the apparatus body and extend from the top of the body side down to the edge of the rear tailboard at an angle.

The outward facing surfaces of the beaver tails, not to include the rear facing overlay, shall be painted to match body job color. The inward facing surface shall be brushed material.

The rear tailboard shall be fabricated of the same structural materials as used in the apparatus body.

The tailboard shall be an independent assembly welded to the rear structural framing to provide body protection and a solid rear stepping platform. The rear step shall be designed to incorporate "crush zone" technology. This idea incorporates lighter materials in the tailboard than the body structure so the step will "crush" in a collision before the body structure.

On the rear body surface, a sign shall be attached that states: "DO NOT RIDE ON REAR STEP, DEATH OR SERIOUS INJURY MAY RESULT."

The rear tailboard and body shall be constructed such that the angle of departure shall be no less than 8 degrees at the rear of the apparatus when fully loaded (NFPA) 1901, Standard for Automotive Fire Apparatus.

Additional brake and/or turn lighting may be added at the rear of the body for FMVSS requirements.

TAILBOARD LENGTH

The rear tailboard shall be approximately 16.00 inches (406.40 mm) deep and shall incorporate an extruded stair tread "Diamondback" material stepping surface bolted in place which spans the width of the apparatus. The extruded stepping surface shall be completely enclosed by the supporting structural framework to minimize damage.

The ventilated "Diamondback" material shall be capable of being easily replaced if necessary, using only hand tools. The framework shall be covered with an adhesive tape providing an aggressive traction surface. Use of any aluminum diamond plate material on these areas shall not be acceptable.

WHEEL WELLS

Wheel wells shall have semicircular black polymer composite inner liners that are bolted to the wheel well panel and supported inboard by brackets that are connected to the body framework. Each wheel well shall be a continuous piece with no breaks or ledges where road grime or debris may accumulate. This liner shall be removable for access to suspension assembly for repairs. There shall be no exception to the bolted wheel well inner liner requirement.

WHEEL WELL MODULES

The body wheel well area shall be fabricated of same material type as the body and finish painted. There shall be "smart storage" compartmentation features incorporated on each side of the apparatus body wheel well modules to utilize and maximize storage space availability.

LEFT FRONT WHEEL WELL

There shall be provisions in the wheel well on the left side in front of the axle.

DIVIDED STORAGE COMPARTMENT

The compartment shall be divided horizontally into two (2) sections for storage of miscellaneous equipment.

LEFT CENTER WHEEL WELL

There shall be provisions in the wheel well on the left side centered on the tandem axle.

TANK DUMP AND CHUTE

The compartment shall have provisions for the tank dump and chute to be specified.

LEFT REAR WHEEL WELL

There shall be provisions in the wheel well on the left side behind the axle.

DIVIDED STORAGE COMPARTMENT

The compartment shall be divided horizontally into two (2) sections for storage of miscellaneous equipment.

RIGHT FRONT WHEEL WELL

There shall be provisions in the wheel well on the front side in front of the axle.

DIVIDED STORAGE COMPARTMENT

The compartment shall be divided horizontally into two (2) sections for storage of miscellaneous equipment.

RIGHT CENTER WHEEL WELL

There shall be provisions in the wheel well on the right side centered on the tandem axle.

TANK DUMP AND CHUTE

The compartment shall have provisions for the tank dump and chute to be specified.

RIGHT REAR WHEEL WELL

There shall be provisions in the wheel well on the right side behind the axle.

DIVIDED STORAGE COMPARTMENT

The compartment shall be divided horizontally into two (2) sections for storage of miscellaneous equipment.

SMART STORAGE DOORS

The smart storage compartment doors shall be smooth and painted stainless steel to match body job color. Where a module storage compartment is specified, a hinged door shall be provided. Each compartment door shall be secured with a round chrome latch.

DOOR OPEN INDICATOR

There shall be a switch installed for each smart storage compartment door.

If the door is not properly closed and the parking brake is released, it shall activate the "hazard light" in the cab to alert the crew.

FENDERETTES

Four (4) polished stainless steel fenderettes shall be provided on body rear wheel well openings, two (2) each side. A rubber welting shall be provided between the body and the crown to seal the seam and restrict moisture from entering. A dielectric barrier shall be provided between the fender crown fasteners (screws) and the fender sheet metal to resist deterioration.

HOSE STORAGE

A hose bed shall be provided and installed with the minimum capacity as required by (NFPA) 1901, Standard for Automotive Fire Apparatus.

The hose bed shall have a slotted .25 inch (6.35 mm) aluminum flooring installed to allow drainage through the tank cavity to the ground below.

The aluminum flooring shall be manufactured in discrete sections to allow for ease of removal and stability. The area shall be free of sharp edges to protect the hose when loading and unloading.

HOSE BED AREA

The hose bed area of the apparatus shall be overlaid with brushed stainless steel material.

HOSE BED AREA TRIMMED W/ BRUSHED SST

The vertical corners at the back hose bed shall be trimmed with brushed stainless steel. The trim shall extend from the hose floor level up to the top edge of the body side.

HOSE BED WALL CAP

The top rail on the hose bed side walls shall have a trim cap fabricated of 16 gauge brushed 304L stainless steel. The cap shall run the entire length of the hose bed side wall and shall provide a smooth surface with a highly finished appearance. It shall extend down at least 1.00 inch on each side of the hose bed side wall.

HOSE BED WALL HEIGHT

The walls of the hose bed shall be 100.00 inches (2.54 m) tall, measured from the bottom edge of the compartments to the top flange.

SYNTEX VINYL COATED NYLON HOSE BED COVER

There shall be a hose bed cover provided and installed with the apparatus to cover the top of the hose bed area.

The cover shall be held in place by an elastic shock cord sewn into the tarp with brass grommets where the shock cord passes through the hose bed cover on the front and sides. Hooks shall be provided on the sides to provide a means of attaching the cover to the apparatus. The hooks shall be made of cast aluminum.

HOSE BED COVER COLOR

The hose bed cover shall be red in color.

CARGO NET REAR HOSE BED RESTRAINT

There shall be a Cargo Net flap that extends down over the rear of the hose bed provided and installed with the apparatus. The cover shall be fastened by an elastic shock cord sewn into the tarp with brass grommets where the shock cord passes through the hose bed cover. Hooks shall be provided on the lower corners to provide a means of attaching the cover to the apparatus. The hooks shall be made of cast aluminum.

REAR FLAP COLOR

The rear flap shall be black.

LED HOSE BED LIGHTING

There shall be four (4) 48.00 inch (122cm) LED Tube lights model #RX-15T16-5050-122CM installed with protective angles. Two (2) each side at the top of the hose bed walls, centered from front to back.

HOSE BED LIGHT ACTIVATION

The hose bed lights shall be activated when the park brake is set.

HOSE BED DUNNAGE AREA

A vertical bulkhead shall be provided and installed at the front of the hose bed area, behind the water tank fill tower, forming a storage area that is separated from the hose bed.

The rear face of the bulkhead shall serve as a mounting surface for the hose bed dividers, resulting in the ability to move any hose bed divider across the entire width of the hose bed.

HOSE BED DIVIDER WITH HAND CUTOUT

There shall be a full height adjustable hose bed divider provided and installed in the hose bed area of the apparatus body.

The divider shall be fabricated of .25 inch (6.35 mm) thick aluminum plate with a double sided reinforcement and attached to the adjustable slide rails. The rear of the divider shall have a radius to provide a smooth corner and a hand cut out to aid in access to the hose bed area. Hose payout shall be unobstructed by the divider.

There shall be a total of two (2) provided and installed in the hose bed.

HOSE LOAD

The hose bed shall accommodate the following hose loads:

BAY 1:

-500 feet of 3.00 inch hose

BAY 2:

-1000 feet of 5.00 inch hose

TANK CAPACITY

The tank shall be 3000 gallons (11356 liters) in capacity.

PRO POLY POLYPRENE TANK

The water tank shall be designed to utilize cavities that have commonly been wasted space. The water tank shall extend up and over the rear center compartment to just behind the rear body wall. The water tank shall fill the void between the main hose bed floor and the top of the rear center compartment. This tank design shall provide for a lower overall tank height, resulting in a lower overall main hose bed height. In addition, this design shall create a lower center of gravity of the vehicle, for improved vehicle handling.

TANK CONSTRUCTION

The booster tank shall be constructed of .50 inch (12.70 mm) thick Polyprene sheet stock which is a non-corrosive stress relieved thermoplastic. It shall be designed to be completely independent of the body and compartments. All joints and seams are extrusion welded and/or contain the "Bent Edge" and tested for maximum strength and integrity. The top of the booster tank is fitted with lifting eyes designed with a 3 to 1 safety factor to facilitate tank removal.

COVER

The tank cover shall be constructed of .50 inch (12.70 mm) thick Polyprene and shall be recessed. A minimum of two lifting dowels shall be drilled and tapped .50 inch (12.70 mm) x 2.00 inch (50.00 mm) to accommodate the lifting eyes.

BAFFLES

The swash partitions shall be manufactured from .50 inch (12.70 mm) Polyprene. All partitions shall be equipped with vent and air holes to permit movement of air and water between compartments to provide maximum water flow. All swash partitions interlock and are welded to one another as well as to the walls of the tank.

MOUNTING

The tank shall have a reinforced .75 inch (19.10 mm) floor for added strength and durability. The tank shall be isolated from the body substructure cross members with .50 inch (12.70 mm) x 2.50 inch (65.00 mm) rubber strips that are 60 durometer in hardness. The tank shall sit nested inside the center body substructure and shall be completely removable without disturbing the body side panels. Tank stops on all four sides will keep the tank from shifting front to back or side to side.

TANK WARRANTY

A lifetime tank warranty will be provided by the tank manufacturer, Pro Poly.

Please see the official warranty document in the appendix (attached) for specific details.

FILL TOWER

The fill tower base shall measure approximately 25.00 inches (635.00 mm) long x 14.00 inches (355.00 mm) wide and incorporate an "anti-surge" baffle inside the tower and the opening shall be approximately 14.00 inches (355.00 mm) x 14.00 inch (355.00 mm).

The tower will have a .25 inch (6.40 mm) thick removable Polyprene screen and a Polyprene hinged type cover that will open if the tank is filled at an excess rate. There shall be a removable .25 inch (6.40 mm) thick Polyprene screen to prevent debris from falling into the tank.

The fill tower shall have a 6.00 inch (150.00 mm) overflow that will discharge underneath the tank, behind the rear axle(s), avoiding the chassis fuel tank and suspension components where applicable. The overflow shall terminate above the tank water level when filled to the rated capacity.

ADDITIONAL 6" VENT/OVERFLOW

An additional 6" diameter vent/overflow pipe shall be provided and shall run through the tank, from the fill tower and exit through the floor of the tank behind the rear axle. This location will not interfere with water flow during dump operations and will minimize traction loss of the rear wheels. The additional vent/overflow system enhances tank fill and dump times for optimum operational functionality.

FILL TOWER LOCATION

The fill tower shall be located to the left side at the front of the hose bed.

SUMP

There shall be two (2) sumps for the tank that will be constructed in an 8.00 inch (203.20 mm) x 16.00 inch (406.40 mm) x 3.00 inch (77.00 mm) deep area.

The construction material shall utilize .50 inch (12.70 mm) Polyprene and be located in line with the tank suction valve. There shall be a 4.00 inch (100.00 mm) schedule 40 Polyprene tube installed that will run from the suction outlet to each sump location. The tank will have an anti-swirl plate located approximately 2.00 inch (50.00 mm) above each sump.

SUMP PLUG

The sump shall have a 3.00 inch (77.00 mm) plug for use in draining and cleaning out the tank.

OUTLETS

In addition to the tank suction valve outlet located in the sump, there shall be an outlet provided for the tank fill valve. If there are any additional options selected (such as an extra tank suction or direct tank inlets), there shall be additional outlets provided to accommodate these items.

REAR DUMP VALVE

A 10.00 inch mild steel square Newton Kwik-Dump valve shall be installed on the water tank. The valve shall be equipped with an electric actuator, controlled by a weather resistant toggle switch.

The location of the valve control shall be positioned away from the immediate dumping area, but close enough to monitor the dumping procedure. The valve will not operate unless the Emergency Master switch is in the on position.

VALVE CONTROL

The rear dump valve shall have controls mounted on the right rear face of the apparatus and on the rocker switch panel in the cab to facilitate remote operation. An indicator light shall be installed in the cab to indicate if the valve is not in the fully closed position.

DUMP CHUTE CONTROLS/CAST PRODUCTS HOUSING

All dump valve and extension chute control switches shall be installed in a Cast Products enclosure model (#EB0006) with a weather resistant-hinged door. A LED TecNiq accent light will be installed inside the enclosure to illuminate the switching area. The light shall be activated whenever the ignition is in the "on" position and the park brake is "set".

The following shall be provided:

Light- TecNiq/Dragon (white) model #D04-W00-1
Light Case- TecNiq/Dragon (white) model #D04-0SH0-1

DUMP VALVE LOCATION

The valve shall be located inside the rear compartment. There shall be a catch tray installed directly under the chute to collect excess water from the valve and chute. The bottom of the catch tray shall be incorporated with a 1" drain hose that will terminate through the rear wall of the compartment.

PAINTED STEEL ELECTRIC TELESCOPING CHUTE EXTENSION

An 18.00 inch mild steel electric telescoping dump chute extension shall be installed.

If the chute is not properly stowed and the parking brake is released, it shall activate the hazard light in the cab to alert the crew.

The chute shall be actuated by the same momentary toggle switch that actuates the valve. The chute shall be fully extended prior to the valve opening and the valve shall be fully closed prior to the chute retracting.

The valve shall be "prime painted" as supplied from the vendor and finish painted to color match the apparatus body, unless otherwise specified.

DUMP CHUTE PAINT COLOR

Dump chute shall be prime painted Vendor standard color.

SIDE DUMP VALVES BETWEEN TANDEM AXLES

Two (2) 10.00 inch mild steel square Newton Kwik-Dump valves shall be installed on the water tank between the tandem axles, one (1) on the left side and one (1) on the right side of the apparatus body. The valves shall be equipped with electric actuators controlled by a weather resistant toggle switch.

The location of the valve controls shall be positioned away from the immediate dumping area, however close enough to monitor the dumping procedure. The valves will not operate unless the Emergency Master switch is in the on position.

VALVE CONTROLS

The side dump valve shall have controls mounted directly adjacent to the dump valve and at the rocker switch panel in the chassis cab to facilitate remote operation. An indicator light shall be installed in the cab to indicate if the valve is not in the fully closed position.

DUMP CHUTE CONTROLS/CAST PRODUCTS HOUSING

All dump valve and extension chute control switches shall be installed in a Cast Products enclosure model (#EB0006) with a weather resistant-hinged door. A LED TecNiq accent light will be installed inside the enclosure to illuminate the switching area. The light shall be activated whenever the ignition is in the "on" position and the park brake is "set".

The following shall be provided:

Light- TecNiq/Dragon (white) model #D04-W00-1
Light Case- TecNiq/Dragon (white) model #D04-0SH0-1

DUMP VALVE DOOR

Each side dump valve specified shall have a .125 inch aluminum diamond plate door that shall open and close with actuation of the dump valve.

PAINTED STEEL ELECTRIC TELESCOPING CHUTE EXTENSION

An 18.00 inch mild steel electric telescoping dump chute extension shall be installed.

If the chute is not properly stowed and the parking brake is released, it shall activate the hazard light in the cab to alert the crew.

The chute shall be actuated by the same momentary toggle switch that actuates the valve. The chute shall be fully extended prior to the valve opening and the valve shall be fully closed prior to the chute retracting.

The valve shall be "prime painted" as supplied from the vendor and finish painted to color match the apparatus body, unless otherwise specified.

DUMP CHUTE PAINT COLOR

Dump chute shall be prime painted Vendor standard color.

LEFT SIDE MOUNTING

There shall be provisions to mount equipment above the compartments on the left side of the apparatus.

Stainless steel trim shall be provided and installed where equipment may come in contact with painted surfaces.

UNI STRUT CHANNELS

The ladder brackets shall be bolted to the side of the body in unistrut channels to eliminate the need to drill holes.

FOLDING LADDER STORAGE

Mounting provisions for one (1) folding ladder on the catwalks shall be provided with a welded aluminum diamond plate hood on one end and a rubber draw latch on the other for secure positioning.

FOLDING LADDER

The following folding ladder shall be supplied with the apparatus:

One (1) Alco-Lite 10 foot (3.0 m) aluminum attic ladder(s), model FL-10.

PIKE POLE STORAGE

There shall be two (2) tubes provided for storage of the pike poles on the catwalk.

T-handle detent pin(s), secured by a chain, shall be used to secure the pike pole(s) during transit.

The following pike poles shall be supplied with the apparatus:

One (1) Duo-Safety 8 foot (2.5 m) pike pole(s) with fiberglass handle

One (1) Duo-Safety 10 foot (3.0 m) pike pole(s) with fiberglass handle

LADDER ACCESS MOUNTING

There shall be a Ziamatic Quic-Lift (LAS) ladder access system installed above the side compartments. There shall be an automatic safety latch to hold the ladder rack in the stowed position.

The rack shall be powered by two (2) Warner 12 volt high cycle 1000 pound electric actuators. When the ladder rack is in the down position the bottom of the rack shall be approximately 48.00 inch from the ground when deployed.

A spring loaded quarter turn latch shall be installed to secure the ladders on the rack when it is in any position.

Flashing LED warning lights shall be provided at the front and rear of the ladder rack and shall automatically activate when the ladder rack is in the down position. When the ladder rack is in motion an alarm shall sound.

The ladder rack shall be rated to lift up to 300 pounds (136.08 kg). When the apparatus is equipped with hinged doors, an interlock shall be installed in the ladder rack circuit to prevent ladder rack operation when any doors are not closed.

If the ladder rack is not properly stowed and the parking brake is released, it shall activate the "hazard light" in the cab to alert the crew.

LADDER BRACKET LOCATION

The ladders shall be located on the right side of the apparatus body above the side compartments.

LADDER RACK SWITCH

One (1) black paddle switch shall be installed on the apparatus in the below location.

LADDER RACK ACTIVATION

The switch to operate the ladder rack shall be located on the rear panel of the apparatus, on the right side.

LADDER COMPLEMENT

The following ladders shall be supplied with the apparatus:

One (1) Alco-Lite 35 foot (10.0 m) three (3) section aluminum extension ladder(s), model PEL 3-35.

One (1) Alco-Lite 16 foot (5.0 m) aluminum roof ladder(s) with folding hooks, model PRL-16.

ZICO LADDER RACK SUCTION HOSE STORAGE

Suction hose shall be stored on a ZICO formed carrier rack sized to hold 6.00 inch x 15.00 foot hose. The rack shall have two (2) Velcro hold-down straps, one (1) at each end, which shall secure the suction hose to the tray.

One (1) carrier shall be mounted to the Zico ladder rack above the side compartments.

SUCTION HOSE

The following suction hose shall be provided with the carrier.

There shall be One (1) 15 foot length(s) of 6.00 inch clear PVC suction hose(s) with lightweight couplings provided with the above specified storage.

SUCTION HOSE STORAGE

Suction hose shall be stored on a formed carrier rack sized to hold 6.00 inch x 15.00 foot hose. The rack shall have two (2) Velcro hold-down straps, one (1) at each end, which shall secure the suction hose to the tray.

One (1) carrier shall be mounted to the catwalk above the left side compartments.

SUCTION HOSE STORAGE MATERIAL

Each suction hose rack shall be constructed of anodized aluminum for a durable, long lasting finish.

SUCTION HOSE

The following suction hose shall be provided with the carrier.

There shall be One (1) 15 foot length(s) of 6.00 inch clear PVC suction hose(s) with lightweight couplings provided with the above specified storage.

OVER-WHEEL COMPARTMENT PARTITIONS

Compartment partitions fabricated of the same material as the body shall be permanently installed in the left over-wheel compartments, right over-wheel compartments, or both where applicable by design.

The partitions shall be permanently installed flush to the forward frame opening, centered within the middle frame opening and flush to the rearward frame openings.

The partitions shall aid in keeping loose equipment from falling into the fore and aft compartments.

SIDE COMPARTMENT UNISTRUT

Vertically mounted Unistrut shall be installed in all apparatus body compartments, in the upper and lower sections, to accommodate the installation of shelves, trays, and or other miscellaneous equipment.

COMPARTMENT FLOOR MATTING

Turtle Tile floor tiles shall be installed on the floor of all exterior compartments. The tile shall be custom fitted to the interior compartment floor construction to protect the entire floor surface from equipment damage.

FLOOR MATTING COLOR

The floor matting shall be black in color.

SHELVING

The shelving shall be made out of .190 inch (4.83 mm) smooth aluminum sheet material with a formed 2.00 inch (50.80 mm) lip on the front and back.

The side mounting brackets shall be provided for vertical adjustment.

Standard manufacture shelf construction capacity ratings are as follows, any requested change to the manufacture's standard design may affect/reduce the ratings accordingly:

Shelving shall be rated at a capacity of 200 pounds (90.72 kg) and applicable to the design configuration.

The following shelving shall be provided:

UPPER HALF DEPTH SHELVING

A full width x half depth shelf shall be provided and installed in the upper area of the compartment specified.

There shall be a total quantity of two (2) provided.

- One (1) located in the L1 compartment.

- One (1) located in the R1 compartment.

LOWER FULL DEPTH SHELVING

A full width x full depth shelf shall be provided and installed in the lower area of the compartment as specified.

There shall be a total quantity of one (1) provided.

- One (1) located in the L4 compartment.

ROLL OUT TRAY(S)

Each tray shall be fabricated of .19 inch (4.83 mm) thick 3003 grade or higher aluminum sheet material with four (4) 3.00 inch (76.20 mm) side flanges, corner welded for maximum strength and shall be as wide and as deep as compartment allows.

The following shall be supplied:

ROLL-OUT ASSEMBLY/AUSTIN

The adjustable tray shall be full width and shall be secured to an Austin Hardware 22.00 inch (558.80 mm) long ball bearing "heavy duty" slide assembly. The slide assemblies shall incorporate cadmium plated ball bearing roller slides and a lock-in, lock-out front drawer release system (FDR).

The tray shall have a 300# capacity and 100% extension and adjustable height utilizing unistrut materials.

There shall be a total quantity of four (4) provided.

- One (1) located in the L1 compartment.
- One (1) located in the L4 compartment.
- One (1) located in the R1 compartment.
- One (1) located in the R4 compartment.

SHELF AND ROLL OUT TRAY MATTING

Any shelf or tray provided shall have Turtle Tile floor tiles installed. The tiles shall be custom fitted for durability and a pleasing appearance.

MATTING COLOR

The matting shall be black in color.

ADJUSTABLE DEPTH SWING-OUT TOOL BOARD/PAC-TRAC

A Pac Trac swing-out tool board with DA finish shall be installed in the compartment as specified. The tool board frame shall be capped on both ends, supported on a pivot rod, seated in bearings attached to the compartment floor and upper bracket.

The tool board shall be mounted to unistrut channels to enable adjustment of the tool panel at various depths within the compartment.

The tool board shall be capable of swinging open to a position perpendicular to the rear wall. A thumb latch and gas shock shall be installed to keep the board in the open and or closed positions.

There shall be a total quantity of one (1).

The pull-out/swing-out style tool board shall have RED reflective striping installed making the perimeter of the tool board more readily visible.

- One (1) located in the L2 compartment.

WALL MOUNTED TOOL BOARD/PAC-TRAC

A Pac Trac tool board with DA finish shall be installed to the back wall of the compartment as specified. The completed tool board assembly shall be attached directly to the upper back wall utilizing custom manufactured plate or angle brackets.

There shall be a total quantity of four (4).

- One (1) located in the L1 compartment.
- One (1) located in the L2 compartment.
- One (1) located in the L3 compartment.
- One (1) located in the L4 compartment.

SIDE RUB RAILS (ALUMINUM CHANNEL)

The lowest edge of the apparatus body side compartments shall be trimmed with brightly anodized aluminum channel rub rail material.

The rub rails shall be approximately 3.00 inches high with flanges turned outwards for increased rigidity, with

each end chamfered to a 45 degree angle. The rub rails shall not be constructed as an integral part of the apparatus body structure, allowing each rub rail to be easily removed in the event of damage.

The rub rails shall be secured with stainless steel fasteners and spaced away from the apparatus body with .50 inch nylon spacers to help absorb moderate side impacts and prevent the collection of water and debris for easier cleaning.

FOLDING STEPS

Cast Products, Inc. model #SP6610-1CH dual LED illuminated folding steps, made of high strength die cast aluminum with a protective chromed coating, pyramid tread platform, conforming to current NFPA requirements, shall be provided and installed on the apparatus as specified.

The steps shall have a minimum of 46 sq. inches of surface area capable of sustaining a 1200 lb. static load. The steps shall be mounted no more than 18" inches between each step.

STEP LOCATION

Four (4) folding steps shall be installed on the left rear vertical face of the body.

10" HANDRAIL

One (1) 10.00 inch long by 1.25 inch diameter handrail constructed of extruded aluminum with a knurled grip, full length red reflective strip and full length illuminated LED light strip shall be installed in a location above the rearward step(s) and in accordance with (NFPA) 1901, Standard for Automotive Fire Apparatus, standard requirements. There shall be a minimum of 2.00 inches of clearance between the bracket and the body.

To be located at Precon

Each handrail LED light strip specified shall be white/clear in color.

ILLUMINATED HANDRAIL LIGHTING ACTIVATION

The illuminated handrail light shall be activated when the park brake is set.

STEP LIGHT ACTIVATION

The step light shall be activated when the park brake is set.

INTERMEDIATE REAR STEP

The rear step shall be 8.00 inches (203.20 mm) in depth.

The step shall be mounted on the flat back of the apparatus with gusset-type mounting to provide sufficient support for loading hose and gaining access to the hose bed area.

The platform stepping surface shall be constructed of .188 inch (4.76 mm) embossed aluminum diamond plate materials.

INTERMEDIATE REAR STEP LOCATION

The rear step shall be located as high as possible beneath the hose bed floor and the horizontal handrail specified.

STEP LIGHTING

One (1) light shall be installed to illuminate the stepping areas as provided. The light shall be a LED Tube light model #RX-15T16-5050-21CM with an aluminum mounting bezel.

The light shall be directed towards and positioned above the stepping surfaces.

STEP LIGHT ACTIVATION

The step light shall be activated when the park brake is set.

HANDRAILS KNURLED ALUMINUM ILLUMINATED

Handrails shall be 1.25 inches in diameter, constructed of extruded aluminum with a knurled grip, full length red reflective strip and full length illuminated LED light strip.

There shall be a 2.00 inch minimum clearance between the handrail and the body. The light shall illuminate an area adjacent to the handrail and in accordance with (NFPA) 1901, Standard for Automotive Fire Apparatus, standard requirements.

The following handrails shall be installed at the approximate lengths noted:

REAR HANDRAIL LOCATION

Three (3) handrails shall be installed on the rear of the apparatus. Each handrail shall be of an adequate length, as available usable space allows, to provide a suitable gripping area for personnel.

Two (2) vertical handrails shall be installed, one on each side, just below the hose bed sides. These vertical handrail(s) shall utilize an offset stanchion with the offset directed away from storage door openings for added clearance, where applicable. The remaining handrail shall be installed horizontally, just below the hose bed area.

Each handrail LED light strip specified shall be white/clear in color.

ILLUMINATED HANDRAIL LIGHTING ACTIVATION

The illuminated handrail light shall be activated when the park brake is set.

TOW EYES

There shall be two (2) rear tow eyes installed to the frame rails, one each side, accessible below the rear of the apparatus.

They shall be manufactured of 1.00 inch plate steel and each plate shall be bolted to the chassis frame rail with a minimum quantity of six (6) grade 8 bolts. The two plates shall be anchored together with 1.00 inch steel tubing to prevent swaying of the frame rails during a towing operation. All steel components shall be painted black.

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LOW-VOLTAGE ELECTRICAL SYSTEM

The apparatus shall be equipped with a Logic Controlled, Low-Voltage (12v) Electrical System, compliant with the latest revision of the (NFPA) 1901, Standard for Automotive Fire Apparatus.

The system shall be capable of performing total load management, load management sequencing, and load shedding via continuous monitoring of the low-voltage electrical system. In addition, the system shall be capable of switching loads (similar to operating as an emergency warning lamp flasher) eliminating the dependency on many archaic electrical components such as conventional flasher modules. The system shall also incorporate provisions for future expansion or system modification.

The low-voltage electrical system shall be designed to distribute the placement of electrical system hardware throughout the apparatus thereby enabling a smaller, optimized wire harness. The programmable, logic controlled system shall eliminate redundant electrical hardware such as extra harnesses, circuit boards, relays, circuit breakers, and separate electrical or interlock subsystems and associated electronics for controlling various electrical loads and inputs.

The node modules shall include protective cover(s) to prevent damage to the node or electrical system during equipment installation and/or removal. The node covers shall be approximately 16.00 to 22.00 inches with an inspection hole positioned for view of the node indicator LED lights. The finish of the cover shall match the compartments interior finish. Node covers will not include any type of shelf mounting structure and may limit the height of unistrut or shelf height within the compartments.

As-built electrical system drawings and an apparatus-specific reference of I/O shall be furnished in the final delivery manuals. These drawings shall illustrate the electrical system broken down into separate functions, or small groups of related functions. Drawings shall depict circuit numbers, electrical components and connectors from beginning to end. **A single drawing for all electrical circuits installed by the apparatus manufacturer**

shall not be accepted.

MULTI-PLEXED ELECTRICAL WARRANTY

A four (4) year limited (V-MUX) multiplex system warranty, of Weldon Technologies, Inc.; shall be provided by the apparatus manufacture for parts and labor, while under normal use and service; against mechanical, electrical and physical defects from the date of installation.

The warranty shall exclude; sensors, shunt interface modules, serial or USB kits, transceivers, cameras, GPS, and electrical display screens, which shall be limited to a period of one a (1) year repair parts and labor from the date of installation.

NODE

An electrical distribution node or relay shall be installed in the below locations of the apparatus body.

The pump node shall be mounted as high as practical in the full depth portion of the right front compartment.

The rear body nodes shall be mounted as high and as far rearward as practical on the back wall of the rearmost compartment.

A protective cover shall be installed to prevent damage to the node or electrical system during equipment installation and or removal. Node covers shall be approximately 16.00 to 22.00 inches in length with an inspection hole positioned for view of the node indicator LED lights. The finish of the cover shall match the compartments interior finish. Node covers will not include any type of shelve mounting structure and shall limit the height of unistrut or shelf height within the compartments.

VISTA IV NODE INTERFACE/DISPLAY

There shall be a Weldon Vista IV Display installed on the apparatus that interfaces with the Multiplexing System.

PERIMETER LIGHTS LOCATION

There shall be four (4) underbody perimeter lights installed on the apparatus positioned to provide illumination to the immediate ground area around the unit.

One (1) under each side of the pumphouse running boards and two (2) under the rear tailboard.

PERIMETER LIGHTS

The underbody perimeter lights provided will be TecNiq model T44 series, 4" round, 8 diode LED lights.

PERIMETER LIGHTS ACTIVATION

The perimeter lights under the body shall illuminate the area with the activation of the chassis ground lights.

UPPER LIGHTING PACKAGE

The following NFPA lighting package, manufactured by Whelen, shall be supplied and installed in the upper areas of the vehicle.

UPPER ZONE A:

There shall be a Whelen model F4N0QLED 60.00 inch NFPA Edge Freedom IV lightbar provided and installed with the apparatus.

The lightbar shall house two (2) corner red linear LEDs, two (2) front red linear LEDs, two (2) front white linear LEDs and two (2) side red linear LEDs. The outer lenses shall be clear.

LIGHTBAR WARNING LIGHT SWITCH E-MASTER ONLY

The lightbar warning lights shall be controlled through the master warning switch only. There shall not be a secondary switch.

UPPER ZONE B&D-FORWARD:

There shall be two (2) Whelen model M9 series LED lights with chrome bezels provided and installed with the apparatus.

There shall be one (1) each side of the body in the upper forward corners.

SIDE WARNING LIGHTS FLASH

The upper side lights shall feature multiple flash patterns including steady burn.

NO Low Intensity Flash Pattern

SIDE WARNING LIGHTS COLOR

The upper warning lights mounted on the side positions shall be red with clear lenses.

UPPER ZONE B&D-REAR:

There shall be two (2) Whelen model M9 series LED lights with chrome bezels provided and installed with the apparatus.

There shall be one (1) each side of the body in the upper rear corners.

SIDE WARNING LIGHTS FLASH

The upper side lights shall feature multiple flash patterns including steady burn.

NO Low Intensity Flash Pattern

SIDE WARNING LIGHTS COLOR

The upper warning lights mounted on the side positions shall be red with clear lenses.

UPPER ZONE C:

There shall be two (2) Whelen model L31H*FN beacons with 360 degree LED lights, provided and installed on the apparatus.

One (1) each side on the rear upper outboard corners of the apparatus.

REAR WARNING LIGHTS COLOR

The upper warning lights mounted at the rear shall be red with clear lenses.

CAST ALUMINUM LIGHT STANCHIONS

Two (2) light stanchions shall be mounted in the upper rear corners of the body sides, one each side. Each shall be large enough to accommodate an upper zone C rotating beacon and a hose bed light if specified. The DOT lights specified elsewhere in the quote shall also be located one on the side and the other located on the rear of each stanchion.

UPPER REAR WARNING LIGHT SWITCH E-MASTER ONLY

The upper rear warning lights shall be controlled through the master warning switch only. There shall not be a secondary switch.

LOWER LED WARNING LIGHTING

The following NFPA lighting package, manufactured by Whelen, shall be supplied and installed in the lower areas of the vehicle.

LOWER ZONE A:

There shall be two (2) Whelen model M6 Super LED lights with chrome bezels provided and installed on the

front face of the apparatus chassis as specified.

FRONT WARNING LIGHTS FLASH

The lower front lights shall feature multiple flash patterns including steady burn.

NO Low Intensity Flash Pattern

FRONT WARNING LIGHTS COLOR

The lower front warning lights mounted on the cab front positions shall be red with clear lenses.

AUXILIARY WARNING LIGHTS LOWER ZONE A:

There shall be two (2) auxiliary Whelen model M6 Super LED lights with chrome bezels provided and installed on the front face of the apparatus chassis as specified.

FRONT WARNING LIGHTS FLASH

The lower front lights shall feature multiple flash patterns including steady burn for solid colors and multiple flash patterns for split colors.

NO Low Intensity Flash Pattern

FRONT WARNING LIGHTS COLOR

The lower front warning lights mounted on the cab front positions shall be red with clear lenses.

LOWER FRONT WARNING LIGHT SWITCH E-MASTER ONLY

The lower front warning lights shall be controlled through the master warning switch only. There shall not be a secondary switch.

LOWER ZONE B&D:

There shall be six (6) Whelen model M6V series LED lights with chrome bezels, three (3) each side, provided and installed with the apparatus.

SIDE WARNING LIGHTS FLASH

The lower side lights shall feature multiple flash patterns including steady burn.

NO Low Intensity Flash Pattern

SIDE WARNING LIGHTS COLOR

The lower side warning lights mounted on the side positions shall be red with red lenses.

SIDE WARNING LIGHTS LOCATION

The warning lights on the side of the apparatus shall be mounted at the pump panel location, centered on the rear wheel well panel and at the rear tailboard location.

BODY SIDE SCENE LIGHT ACTIVATION

The scene lighting shall be activated with the chassis side scene lights.

LOWER ZONES B&D CAST ALUMINUM ANGLED LIGHT HOUSING

A cast aluminum angled light housing shall be used for the rearmost warning light in zones B&D to ensure the light is mounted as far rearward as possible on the tailboard.

LOWER SIDE WARNING LIGHT SWITCH E-MASTER ONLY

The lower side warning lights shall be controlled through the master warning switch only. There shall not be a secondary switch.

LOWER ZONE C:

There shall be two (2) Whelen model M6 series Super-LED lights with chrome bezels, one (1) each side, on provided and installed on the rear of the body.

REAR WARNING LIGHTS FLASH

The lower rear lights shall feature multiple flash patterns including steady burn.

NO Low Intensity Flash Pattern

REAR WARNING LIGHTS COLOR

The lower rear warning lights mounted at the rear shall be red with clear lenses.

LOWER REAR WARNING LIGHT SWITCH E-MASTER ONLY

The lower rear warning lights shall be controlled through the master warning switch only. There shall not be a secondary switch.

LED REAR TAILLIGHT ASSEMBLY

There shall be Whelen M6-Series Super LED rear taillight assemblies provided and installed with the apparatus, one (1) each side at the rear.

The following shall be installed in the order as specified from top to bottom:

One (1) M62BTT LED red brake light
One (1) M62T LED series amber turn signal light
One (1) M62BU LED clear back-up light

MOUNTING ASSEMBLY

There shall be Whelen 4-position vertical chrome plated housing provided for each taillight assembly.

The upper most open cavity shall be filled with the specified warning light for the rear of the apparatus.

REAR TAILLIGHTS COLOR

The taillights mounted at the rear shall have clear lenses.

BACKUP LIGHTS

The backup lights shall illuminate when the apparatus is placed in reverse.

LED DOT LIGHTING

There shall be seven (7) lights located on the rear of the apparatus. Three (3) of the lights shall be mounted on the rear of the apparatus center location of the tailboard, for use as identification lamps. Two (2) additional lights shall be located on the rear outboard locations, one (1) each side as high as possible. Two (2) lights shall be mounted on the sides facing the side at the rear corners, for use as clearance lamps.

The lights shall be TecNiq S17 series LED red markers with red lens.

DOT ADDITIONAL MARKER LIGHTS

There shall be two (2) amber LED intermediate marker lights/intermediate turn signals installed in the rub rail, forward of the rear wheel well, one (1) each side.

The lights shall be TecNiq S17 series LED amber markers/turn with amber lens.

INTERMEDIATE TURN SIGNALS

The intermediate turn signals will flash with the turn indicators.

BRITAX LIGHTING

There shall be two (2) LED Britax lights, model number 63-4610, with rubber stalk mounts installed on the body, one (1) each side, as far to the rear as possible.

REAR DIRECTIONAL LIGHTBAR

There shall be a Whelen model #TAM65 36.00 inch long directional lightbar with six (6) amber TIR-Super LED light heads provided and installed on the apparatus.

The rear directional lights shall be controlled by a Whelen Model TACTL5 control head.

RDL CONTROL HEAD MOUNTING LOCATION

Rear Directional Lightbar control head shall be mounted in the rocker panel cutout provided by that chassis manufacturer.

DIRECTIONAL LIGHTBAR LOCATION & PROTECTION

The rear directional light bar shall be installed directly above the rear door.

A .125 inch embossed aluminum diamond plate light shield shall be installed directly above the rear directional light bar to protect the light bar from accidental damaged during hose loading and unloading operations.

This light shield shall not be used as a stepping surface.

REVERSE CAMERA/MONITORING SYSTEM

A Zone Defense rear vision camera kit shall be provided and installed in the apparatus and will include a 7.00 inch LCD colored monitor and three (3) cameras.

The system shall include an integrated microphone and speaker which shall permit voice communication to the driver from the back-up advisor.

The cameras shall be activated manually or when the apparatus is placed in reverse.

REAR VIEW CAMERA LOCATION

Three (3) cameras shall be surface mounted on the apparatus body for maximum viewing capability.

One (1) camera shall be mounted at the rear of the body (center location) and may include a protective shroud as required and two (2) teardrop cameras shall be mounted high at the front corner of the body, one (1) each side.

CAMERA MONITOR MOUNTING LOCATION

The camera monitor shall be mounted in the driver's rocker switch panel.

6 POSITION 12-VOLT POWER FUSE BLOCK

A Blue Sea Systems #5025 Six (6) Circuit ST Blade Fuse Block shall be provided. The fuse panel shall be protected by a 40amp battery direct load.

A 6 position Blue Sea Systems fuse block shall be provided in each of the following locations:

ACCESSORY POWER LOCATION

In the chassis cab, within reach of the driver, there shall be accessory power.

There shall be a total of one (1) provided.

SIDE SCENE LIGHT LOCATION

There shall be four (4) scene lights installed on the sides of the apparatus, two (2) on each side.

One (1) located at the front and one (1) located at the rear corner.

The scene lights on the side shall be positioned inboard of the warning lights specified.

SCENE LIGHT MODEL

Whelen model #M9LZC LED gradient scene lighting with chrome flange shall be surface mounted on the apparatus.

Each light shall offer LED directional lighting from 2 to 40-degrees with internal and external optics. The lamp shall draw 6 amps and generate 6,500 lumens.

BODY SIDE SCENE LIGHT ACTIVATION

The scene lighting shall be activated with the chassis side scene lights.

REAR SCENE LIGHT LOCATION

There shall be one (1) scene light installed on the rear facing panel at the center location.

SCENE LIGHT MODEL

Whelen Pioneer "Summit Series" 12v LED bracket mounted flood light model S30MW 30" long.

REAR SCENE LIGHT ACTIVATION

The rear scene lighting shall be activated when the apparatus transmission is shifted into reverse and by a rocker switch located on the switch panel in the cab. The scene shall also be interlocked with the park brake.

The switch shall be labeled as follows:

Rear Scene

FRONT SCENE LIGHT LOCATION

There shall be one (1) scene light mounted center on the front brow of the cab.

SCENE LIGHT MODEL

Whelen Pioneer model #PFH2 series LED scene lighting with white housing shall be installed on the apparatus.

Each lamp head shall have two (2) 12v Super-LED® panel at 150 watts total. The light head shall draw 13.0 amps and generate 23,000 lumens. Each lamp head shall be no more than 4.25 inches in height by 14.00 inches in width.

FRONT SCENE LIGHT ACTIVATION

The front scene lighting shall be activated by a rocker switch located on the switch panel in the cab.

The switch shall be labeled as follows:

Front Scene

== Tanker Dryside - Extras - 10.220 06/06/22 ==

3M REFLECTIVE STRIPING

There shall be a 6.00 inch (152.40 mm), 3M reflective stripe with two (2) 1.00 inch (25.40 mm) accent stripes applied to the chassis and apparatus body as specified:

The above specified Striping shall consist of one color. The provided stripe shall be:

reflective strip black in color.

STRIPE PATTERN

The reflective striping shall be applied around the perimeter of the front of the apparatus in a straight line. In addition, when the stripe reaches the front area of the body, the stripe shall jog in a 'Hockey Stick' shape pattern, then continuing around the rear of the apparatus at a slightly higher level.

REAR RETRO-REFLECTIVE CHEVRON STRIPING

A minimum of 50 percent of the rear-facing vertical surface, visible from the rear of the apparatus, shall be equipped with 3M Diamond Grade, retro-reflective striping in a chevron pattern, sloping downward and away from the centerline of the vehicle at an angle of 45-degrees.

The stripe shall be 6.00 inches (152.40 mm) wide alternating in colors.

CHEVRON COLOR

The retro-reflective chevron striping shall be red/black in color.

22K SIGN GOLD LETTERING

22k Sign Gold lettering with black shadowing and edging shall be provided and installed on the apparatus as directed by the Fire Department. A maximum total of sixty (60) letters approximately 3.00 inches (76.2 mm) high shall be provided.

22K SIGN GOLD LETTERING

22k Sign Gold lettering with black shadowing and edging shall be provided and installed the apparatus body as directed by the Fire Department. A maximum total of sixty (60) letters up to 6.00 inches (152.4 mm) high shall be provided.

FIRE DEPARTMENT SUPPLIED DECALS

The apparatus decals shall be provided and installed by the Fire Department after final delivery of the completed apparatus.

LICENSE PLATE MOUNTING

A Cast Products, model LP0004-1-B, cast aluminum fully enclosed license plate bracket shall be installed. The bracket shall incorporate a clear LED light (WL0501) to illuminate the license plate and meet DOT requirements.

LICENSE PLATE BRACKET LOCATION

The above specified license plate bracket shall be installed at the back of the apparatus on the right side. The bracket shall be mounted to meet all applicable DOT standards.

MISCELLANEOUS EQUIPMENT

The following equipment list shall be provided with the completed apparatus.

WHEEL CHOCKS

One (1) set of NFPA compliant Ziamatic folding wheel chocks model # SAC-44-E shall be supplied with the apparatus.

ZICO WHEEL CHOCK MOUNTING BRACKETS

One (1) set of Ziamatic folding wheel chock underbody horizontal mounts, model # SQCH-44-H, shall be installed on the apparatus under the body in front of the rear wheels on the left side.

EXTINGUISHERS

All NFPA required fire extinguishers will be supplied and installed by the Fire Department before the apparatus is placed into service.

All NFPA required portable hand lights will be supplied and installed by the Fire Department before the truck is placed into service.

FLARES

All NFPA required flares will be supplied and installed by the Fire Department before the truck is placed into service.

TRAFFIC CONES

All NFPA required traffic cones will be supplied and installed by the Fire Department before the truck is placed into service.

TRAFFIC VEST

All NFPA required traffic vest will be supplied and installed by the Fire Department before the truck is placed into service.

AED (AUTOMATIC EXTERNAL DEFIBRILLATOR)

All NFPA required AED units will be supplied and installed by the Fire Department before the truck is placed into service.

FIRST AID KIT

All NFPA required First Aid Kits will be supplied and installed by the Fire Department before the truck is placed into service.

SALVAGE COVERS

All NFPA required salvage covers will be supplied and installed by the Fire Department before the truck is placed into service.

AXES

All NFPA required Axes will be supplied and installed by the Fire Department before the truck is placed into service.

WRENCH SETS

All NFPA required spanner and hydrant wrenches will be supplied and installed by the Fire Department before the truck is placed into service.

NOZZLES

All NFPA required nozzles will be supplied and installed by the Fire Department before the truck is placed into service.

HANDHELD TOOLS

CLAW TOOL

All NFPA required claw tools will be supplied and installed by the Fire Department before the truck is placed into service.

HALLIGAN TOOL

All NFPA required Halligan tools will be supplied and installed by the Fire Department before the truck is placed into service.

CROW BAR

All NFPA required crowbars will be supplied and installed by the Fire Department before the truck is placed into service.

SLEDGE HAMMER

All NFPA required sledge hammers will be supplied and installed by the Fire Department before the truck is placed into service.

RUBBER MALLET

All NFPA required rubber mallets will be supplied and installed by the Fire Department before the truck is placed into service.

SHOVELS

All NFPA required shovels will be supplied and installed by the Fire Department before the truck is placed into service.

BOLT CUTTER

All NFPA required bolt cutters will be supplied and installed by the Fire Department before the truck is placed into service.

SUPPLY HOSE

All NFPA required fire hose will be supplied and installed by the Fire Department before the truck is placed into service.

ADAPTORS

All NFPA required Adaptors will be supplied and installed by the Fire Department before the truck is placed into service.

SCBA & CYLINDERS (air packs)

All NFPA required SCBA and Cylinders will be supplied and installed by the Fire Department before the truck is placed into service.

References

Spartan/Smeal References

Department Name	Address	State	Phone #	Truck #	Series Type	Apparatus Type	Ordered Date
Andover Fire Department	11 School Road	CT	860-742-7477	619015-01	UST	Tanker	06/05/2019
Allingtown Fire Department	20 Admiral Street	CT	203-933-2541	S5245	Smeal	Pumper	09/29/2021
Ashford Fire Department	46 Westford Road	CT	860-429-9862	220086-01	Star Series	Pumper	029/24/2020
Atwood Hose Fire Co	24 Wauregan Rd	CT	860-774-4748	S4548	Smeal	Pumper	06/08/2015
Augusta Fire Dept	1 Hartford Sq	ME	207-626-2421	S4568	Smeal	Aerial	07/31/2015
Bantam Fire Company	92 Doyle Road	CT	860-567-5198	U5704	UST	Tanker	12/30/2015
Berlin Fire Dept	23 Linden St	MA	978-838-2444	L7016	Star Series	Aerial	08/08/2016
Bethlehem Fire Department	26 Main Street S	CT	203-266-7696`	S5003	Smeal	Pumper	12/05/2018
Bolton Vol Fire Dept	168 Bolton Center Rd	CT	860-649-3910	U5718	UST	Tanker	04/14/2016
Bristol Fire & Rescue	4 Annawamscutt Dr.	RI	401-253-6912	S217162-01	Smeal	Pumper	07/26/2017
Bristol Fire & Rescue	4 Annawamscutt Dr.	RI	401-253-6912	S5145	Smeal	Pumper	9/16/2020
Brockton Fire Dept	560 West St	MA	508-583-2323	S4603	Smeal	Aerial	10/01/2015
Central Coventry Fire Dist Hdqtrs	240 Arnold Rd	RI	401-825-7800	217090-01	S-180	Pumper	12/22/2017
Central Coventry Fire Dist Hdqtrs	240 Arnold Rd	RI	401-825-7800	216043-01	S-180	Pumper	03/31/2017
Champion Fire Co #5 Sta #121	60 Main St	VT	802-824-3242	S4472	Smeal	Pumper	04/13/2015
Cornwall Vol Fire Dept	289 Sharon Goshen Tpke	CT	860-672-6526	U5722	UST	Tanker	06/30/2016
Dedham-Lucerne Vol Fire Dept	2073 Main Rd Ste A	ME	207-843-7530	218161-01	Star Series	Tanker	09/24/2018
East Great Plain Vol Fire Co	488 New London Tpke	CT	860-886-0392	619007-01	UST	Tanker	02/19/2019
East Haven Fire Department	200 Main Street	CT	203-468-3221	221021-01	Star Series	Pumper	2/12/2021
East Haven Fire Department	200 Main Street	CT	203-468-3221	518027-01	S-180	Pumper	9/30/2019
East Putnam Fire Dist #1	659 Providence Pike	CT	860-928-6636	S4688	Smeal	Pumper	07/07/2016
Eliot Fire Department	1323 State Rd	ME	207-439-1253	S5176	Smeal	Pumper	1/7/2021
Flanders Fire Dept	151 Boston Post Rd	CT	860-739-6968	S4424	Smeal	Aerial	06/30/2015
Flanders Fire Dept	151 Boston Post Rd	CT	860-739-6968	S4424	Smeal	Pumper	06/30/2015
Groton City Fire Dept	140 Broad St	CT	860-445-2456	S4141	Smeal	Aerial	01/12/2015
Groton Fire-Rescue	45 Farmers Row	MA	978-448-1137	S217128-01	Smeal	Aerial	06/16/2017
Groton Fire-Rescue	45 Farmers Row	MA	978-448-1137	S219083-01	Smeal	Pumper	06/11/2019
Hamden Fire Dept	2750 Dixwell Ave Fl 1	CT	203-407-5880	S4501	Smeal	Pumper	03/09/2015
Hamden Fire Dept	2750 Dixwell Ave Fl 1	CT	203-407-5880	S4659	Smeal	Aerial	03/31/2016
Hamden Fire Dept	2750 Dixwell Ave Fl 1	CT	203-407-5880	S217201-01	Smeal	Pumper	09/26/2017
Hancock Fire Dept	40 Bennington Rd	NH	603-525-3366	S218045-01	Smeal	Pumper	04/17/2018
Hawleyville Fire Department	34 Hawleyville Rd	CT	203-270-4389	220025-01	Star Series	Tanker	3/31/2020
Jewett City Fire Department	105 Hill Street	CT	860-376-2707	S5287	Smeal	Pumper	11/30/2021
Johnston Fire Department	1520 Atwood Street	RI	401-351-1800	S5335	Smeal	Aerial	4/18/2022
Kingston Fire Department	106 Pembrooke St	MA	781-585-0532	S5181	Smeal	Platform	1/28/2021
Lakeville Fire Dept	346 Bedford St	MA	508-947-4121	S4750	Smeal	Pumper	12/12/2016
Lakeville Fire Dept	346 Bedford St	MA	508-947-4121	217111-01	S-180	Pumper	06/07/2019

Mansfield Fire & Emer Svcs	4 S Eagleville Rd	CT	860-429-3364	218259-01	Star Series	Pumper	12/31/2018
Mechanic Falls Fire Dept EMS	106 Lewiston St	ME	207-345-2871	S4498	Smeal	Pumper	02/17/2015
Medfield Fire Department	114 North Street	MA	508-359-2323	S20019-01	S-180	Pumper	5/21/2021
Medfield Fire Department	114 North Street	MA	508-359-2323	S19015-01	S-180	Pumper	6/29/2020
Meriden Fire Dept	561 Broad St	CT	203-630-5868	S4687	Smeal	Pumper	06/29/2016
Meriden Fire Dept	561 Broad St	CT	203-630-5868	S5288	Smeal	Pumper	11/30/2021
Montgomery Fire Department	159 Main Street	MA	413-862-4506	221151-01	Star Series	Tanker	10/29/2021
Mortlake Fire Department	12 Canterbury Rd	CT	860-774-7555	221110-01	Star Series	Pumper	9/3/2021
New Britain Fire Department	253 Beaver Street	CT	860-826-3000	L221066-01	LTC	Aerial	4/23/2021
Newport City Fire Department	350 Western Ave	VT	802-334-7919	220032-01	Star Series	Tanker	4/12/2022
North Branford Fire Dept	909 Foxon Rd	CT	203-488-8432	U5664	UST	Tanker	01/09/2015
North Kingstown Fire Dept	8150 Post Rd	RI	401-294-3346	S5319	Smeal	Pumper	1/25/2022
North Kingstown Fire Dept	8150 Post Rd	RI	401-294-3346	S219020-01	Smeal	Aerial	02/19/2019
North Scituate Fire Dept #1	201 Danielson Pike	RI	401-647-9298	S4730	Smeal	Pumper	10/05/2016
Norwell Fire Dept	300 Washington St	MA	781-659-8158	S4562	Smeal	Pumper	07/15/2015
Orange Fire Dept	355 Boston Post Rd	CT	203-891-1052	S217262-01	Smeal	Aerial	11/21/2017
Orange Fire Dept	355 Boston Post Rd	CT	203-891-1052	221076-01	Star Series	Pumper	5/14/2021
Oxford Fire Dept	486 Oxford Rd	CT	203-888-2543	619021-01	UST	Tanker	07/25/2019
Pascoag Fire Department	105 Pascoag Main Street	RI	401-568-4470	221176-01	Star Series	Tanker	12/27/2021
Padanaram Hose Company	17 North Street	CT	203-743-1910	218245-01	Star Series	Pumper	12/18/2018
Palmer Fire Dept	12 Walnut St	MA	413-283-3861	S219078-01	Smeal	Pumper	05/29/2019
Pepperell Fire Dept	59 Main St	MA	978-433-2113	S218256-01	Smeal	Aerial	12/31/2018
Preston City Fire Department	412 CT-165	CT	860-887-4815	619018-01	UST	Tanker	06/30/2019
Quaker Hill Fire Dept	17 Old Colchester Rd	CT	860-447-3333	L7002	LTC	Aerial	05/22/2015
Quinnville Fire Dept	861 Lower River Rd	RI	401-333-0081	219105-01	Star Series	Pumper	07/18/2019
Richmond-Carolina Fire Dept	208 Richmond Townhouse Rd	RI	401-213-6595	S4587	Smeal	Pumper	09/10/2015
Scarborough Fire Dept	246 US Route 1	ME	207-883-4542	S4532	Smeal	Pumper	03/31/2015
Southington Fire Department	315 N Main Street	CT	860-621-3202	619008-01	UST	Tanker	03/11/2019
Town of Littleton Fire Dept	20 Foster St	MA	978-952-2302	S4552	Smeal	Pumper	06/11/2015
Union Fire Dist	131 Asa Pond Rd	RI	401-789-8354	S4686	Smeal	Aerial	06/27/2016
Waterbury Fire Department	236 Grand Street	CT	203-597-3450	L220029-01	LTC	Platform	11/16/2021
West Hartford Fire Dept	103 Raymond Rd	CT	860-523-5263	518001-01	S-180	Pumper	12/12/2018
Williston Fire Department	645 Talcott Rd	VT	802-676-5622	S4794	Smeal	Pumper	5/11/2017
Williston Fire Department	645 Talcott Rd	VT	802-676-5622	S5115	Smeal	Aerial	3/26/2020
Williston Fire Department	645 Talcott Rd	VT	802-676-5622	S5116	Smeal	Pumper	3/26/2020
Winsted Fire Department	27 Elm Street	CT	860-379-5155	S5306	Smeal	Pumper	12/21/2021
Winchester Fire Department	100 Newfield Rd	CT	860-307-0858	221161-01	Star Series	Pumper Tanker	11/12/2021

Warranties

SPARTAN
REV GROUP
EMERGENCY RESPONSE

Fire Apparatus
Two (2) Years or 36,000 Miles
General
Limited Warranty

Subject to the provisions, limitations, and exclusions set forth in this certificate, Spartan Fire, LLC ("OEM") extends the following Limited Warranty to the Purchaser of a fire apparatus vehicle (the "Product") manufactured by OEM. As used herein, "Purchaser" means that person or entity which purchases and commences first commercial use of the Product for its intended purpose.

This Limited Warranty Covers:

The Product shall be free from defects in material and workmanship, under normal use and maintenance, for the warranty period described below in this certificate. Also see the Section herein entitled "Specific Exclusions and Conditions" for more details regarding the parts and components covered by this Limited Warranty.

This Limited Warranty Coverage will Begin:

The date the Product is placed into service by the Purchaser or thirty (30) days after the date of the Product invoice to the Purchaser, whichever comes first.

This Limited Warranty Coverage Ends After the First Occurrence of:

Two (2) Years or 36,000 Miles

Who is Covered by this Limited Warranty: This Limited Warranty only applies to Purchaser and, unless required by applicable law, may not be assigned or transferred to any other person or entity without OEM's prior written authorization. This Limited Warranty is valid only in the country in which the Product is first sold.

How to Obtain Warranty Service: See the Operator Manual(s) for instructions on how to register the Product, to obtain warranty repair authorization and service, and to make arrangements for the Product to be transported to an OEM-authorized service facility for warranty service. All warranty service and towing must be authorized by an OEM customer service representative before any warranty or towing service is performed. OEM shall not be responsible for, or reimburse Purchaser for, any costs or expenses relating to unauthorized warranty service or towing. Purchaser must notify OEM or its authorized customer service representative as soon as possible after discovery of any defect with the Product but in no event more than ten (10) days after discovery.

Exclusive Remedy: OEM will, at its option, repair or replace the Product if it is defective in materials or workmanship during the warranty period stated above and covered by this Limited Warranty. Such repair or replacement may be performed at an OEM facility or by an OEM-authorized service facility. Any repaired or replaced Product shall be warranted only for the remainder of the warranty period applicable to the original Product. THIS PARAGRAPH CONTAINS OEM'S SOLE OBLIGATION AND PURCHASER'S EXCLUSIVE REMEDIES FOR ANY DEFECTIVE PRODUCT COVERED BY THIS LIMITED WARRANTY.

Third Party Representations: No person or entity is authorized to create any other warranty, obligation or liability in connection with the Product, and OEM is not responsible for any representation, promise or warranty made by any person, dealer, component manufacturer, vehicle manufacturer, or other entity beyond what is expressly stated in this Limited Warranty.

Disclaimer of Other Warranties: THIS LIMITED WARRANTY IS OEM'S SOLE AND EXCLUSIVE WARRANTY WITH RESPECT TO THE PRODUCT. EXCEPT FOR THE LIMITED WARRANTIES STATED IN THIS CERTIFICATE, OEM MAKES NO OTHER EXPRESS OR IMPLIED REPRESENTATIONS OR WARRANTIES WHATSOEVER REGARDING THE PRODUCT INCLUDING, WITHOUT LIMITATION, ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR NON-INFRINGEMENT, OR ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE, ALL OF WHICH ARE EXPRESSLY DISCLAIMED. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. TO THE EXTENT THAT ANY IMPLIED WARRANTIES MAY NOT BE DISCLAIMED UNDER APPLICABLE LAW, SUCH WARRANTIES ARE EXPRESSLY LIMITED TO THE DURATION OF THE EXPRESS WARRANTY STATED IN THIS CERTIFICATE.

Limitation of Liability:
IN NO EVENT SHALL OEM BE LIABLE TO PURCHASER OR ANY THIRD PARTY FOR ANY INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, ENHANCED, PUNITIVE OR CONSEQUENTIAL DAMAGES RELATING TO OR ARISING OUT OF THE PRODUCT OR OTHERWISE (INCLUDING, WITHOUT LIMITATION, LOST REVENUE, LOST PROFITS, LOSS OF OPPORTUNITIES, LOSS OF USE, DOWN TIME, DIMINUTION IN VALUE, COST OF ALTERNATIVE TRANSPORTATION, INCONVENIENCE, COST OF LODGING, VEHICLE RENTAL EXPENSES, LABOR CHARGES, EQUIPMENT RENTAL CHARGES OR OTHER ECONOMIC LOSSES), WHETHER IN AN ACTION IN CONTRACT OR TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY OR OTHERWISE, EVEN IF OEM HAS BEEN ADVISED OF THE POSSIBILITIES OF SUCH DAMAGES. FURTHER, OEM'S LIABILITY FOR ANY AND ALL WARRANTY CLAIMS HEREUNDER SHALL BE LIMITED TO THE PURCHASE PRICE OF THE PRODUCT.

Specific Exclusions and Conditions

Except as excluded in this certificate, this Limited Warranty covers Product parts, components, and subsystems manufactured by OEM. Excluded from this Limited Warranty are (a) Third-Party Parts, as defined below, and (b) those parts, components and subsystems manufactured by OEM which are subject to separate OEM limited warranties such as, but not limited to, the Product's chassis, engine emissions system, electrical system, multiplex electronic system, frame, aerial device, hydraulic system, body structure, cab structure, paint system, and plumbing system.

If the Product is manufactured using a chassis provided by a Third-Party Parts manufacturer (i.e. a commercial chassis), this Limited Warranty shall not apply to the chassis. Instead, the Product's chassis will be covered by, and subject to, a separate limited warranty provided by that Third-Party Parts manufacturer.

General Exclusions and Conditions; What This Limited Warranty Does Not Cover:
The Product may incorporate subsystems, assemblies, parts, components, and other items manufactured by third-party manufacturers which may include, but are not limited to, chassis, engine and emissions system, transmission, transfer case, axles, suspensions, water pumps, monitors, valves, foam systems, aerial devices (each, a "Third-Party Part" and collectively, the "Third-Party Parts"). OEM does not warrant Third-Party Parts. Defects in materials and workmanship related to Third-Party Parts that carry their own warranty are subject to that warranty. OEM hereby assigns to Purchaser any assignable warranty applicable to the Third-Party Parts. The previous sentence is OEM's sole obligation with respect to Third-Party Parts.

This Limited Warranty does not apply to, and OEM shall have no responsibility or liability for, any claim, loss or damage resulting from or caused by any of the following: (a) normal wear and tear; (b) misuse, carelessness, abuse or neglect (e.g. overloading, driving over curbs or exposure to corrosive or flooded environments); (c) improper handling, storage or repairs; (d) use of the Product other than for its intended purpose; (e) collision, fire, theft, vandalism; (f) weather, freezing, flooding, acts of God, or other casualties; (g) exposure to salt, acids, corrosive agents or other damaging chemicals or materials; (h) components or systems, whether new or used, provided by Purchaser and installed at its request; (i) when the odometer or hour meter is disconnected, or its reading has been altered, or actual mileage or hours cannot be determined; (j) improper maintenance or use including, but not limited to, failure to follow the required or recommended maintenance schedules, failure to maintain operating parameters, and failure to follow operating instructions; (k) any Third-Party Parts; (l) additions or accessories not originally installed by OEM, including ancillary equipment used in firefighting, and any problems resulting from such additions or accessories; (m) any "aftermarket" devices installed on the Product; (n) the repair or modification of any existing part, component or subsystem originally installed by OEM without its prior express written authorization and any problems resulting from such repair or modification. Further, this Limited Warranty shall be null and void if the Product is ever leased or rented, whether or not for compensation, to another person or entity.

Miscellaneous Terms:
OEM reserves the right to make changes to the Product without incurring any obligation to modify or improve previously manufactured parts or products. Further, OEM may respond to or correct any issue or complaint for which it does not otherwise have responsibility under this Limited Warranty without becoming obligated to respond to or correct any future issue or complaint of a same or similar nature, and such response or correction shall not constitute an admission of warranty coverage or impose any additional obligations on OEM.

SPARTAN
REV GROUP
EMERGENCY RESPONSE

Fire Apparatus
Four (4) Years or 60,000 Miles
Multiplex Electronics
Limited Warranty

Subject to the provisions, limitations, and exclusions set forth in this certificate, Spartan Fire, LLC ("OEM") extends the following Limited Warranty to the Purchaser of a fire apparatus vehicle manufactured by OEM (the "Apparatus"). As used herein, "Purchaser" means that person or entity which purchases and commences first commercial use of the Product for its intended purpose.

This Limited Warranty Covers:
The Apparatus's Multiplex electrical system (the "Product") shall be free from defects in material and workmanship, under normal use and maintenance, for the warranty period described below in this certificate. Also see the Section herein entitled "Specific Exclusions and Conditions" for more details regarding the parts and components covered by this Limited Warranty.

This Limited Warranty Coverage will Begin:
The date the Product is placed into service by the Purchaser or thirty (30) days after the date of the Product invoice to the Purchaser, whichever comes first.

This Limited Warranty Coverage Ends After the First Occurrence of:
Four (4) Years or 60,000 Miles

Specific Exclusions and Conditions
This Limited Warranty only covers defects in the V-MUX brand electronic modules or displays provided by Weldon, a Division of Akron Brass or ES-Key brand electronic modules or displays provided by Hale Products, Inc. of the System. All other parts, components and subsystems relating to the Product and the Apparatus are excluded from this Limited Warranty including, but are not limited to, all other electronical or electronic components.

Who Is Covered by this Limited Warranty: This Limited Warranty only applies to Purchaser and, unless required by applicable law, may not be assigned or transferred to any other person or entity without OEM's prior written authorization. This Limited Warranty is valid only in the country in which the Product is first sold.

How to Obtain Warranty Service: See the Operator Manual(s) for instructions on how to register the Product, to obtain warranty repair authorization and service, and to make arrangements for the Product to be transported to an OEM-authorized service facility for warranty service. All warranty service and towing must be authorized by an OEM customer service representative before any warranty or towing service is performed. OEM shall not be responsible for, or reimburse Purchaser for, any costs or expenses relating to unauthorized warranty service or towing. Purchaser must notify OEM or its authorized customer service representative as soon as possible after discovery of any defect with the Product but in no event more than ten (10) days after discovery.

Exclusive Remedy: OEM will, at its option, repair or replace the Product if it is defective in materials or workmanship during the warranty period stated above and covered by this Limited Warranty. Such repair or replacement may be performed at an OEM facility or by an OEM-authorized service facility. Any repaired or replaced Product shall be warranted only for the remainder of the warranty period applicable to the original Product. THIS PARAGRAPH CONTAINS OEM'S SOLE OBLIGATION AND PURCHASER'S EXCLUSIVE REMEDIES FOR ANY DEFECTIVE PRODUCT COVERED BY THIS LIMITED WARRANTY.

Third Party Representations: No person or entity is authorized to create any other warranty, obligation or liability in connection with the Product, and OEM is not responsible for any representation, promise or warranty made by any person, dealer, component manufacturer, vehicle manufacturer, or other entity beyond what is expressly stated in this Limited Warranty.

Disclaimer of Other Warranties: THIS LIMITED WARRANTY IS OEM'S SOLE AND EXCLUSIVE WARRANTY WITH RESPECT TO THE PRODUCT. EXCEPT FOR THE LIMITED WARRANTIES STATED IN THIS CERTIFICATE, OEM MAKES NO OTHER EXPRESS OR IMPLIED REPRESENTATIONS OR WARRANTIES WHATSOEVER REGARDING THE PRODUCT INCLUDING, WITHOUT LIMITATION, ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR NON-INFRINGEMENT, OR ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE, ALL OF WHICH ARE EXPRESSLY DISCLAIMED. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. TO THE EXTENT THAT ANY IMPLIED WARRANTIES MAY NOT BE DISCLAIMED UNDER APPLICABLE LAW, SUCH WARRANTIES ARE EXPRESSLY LIMITED TO THE DURATION OF THE EXPRESS WARRANTY STATED IN THIS CERTIFICATE.

Limitation of Liability:
IN NO EVENT SHALL OEM BE LIABLE TO PURCHASER OR ANY THIRD PARTY FOR ANY INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, ENHANCED, PUNITIVE OR CONSEQUENTIAL DAMAGES RELATING TO OR ARISING OUT OF THE PRODUCT OR OTHERWISE (INCLUDING, WITHOUT LIMITATION, LOST REVENUE, LOST PROFITS, LOSS OF OPPORTUNITIES, LOSS OF USE, DOWN TIME, DIMINUTION IN VALUE, COST OF ALTERNATIVE TRANSPORTATION, INCONVENIENCE, COST OF LODGING, VEHICLE RENTAL EXPENSES, LABOR CHARGES, EQUIPMENT RENTAL CHARGES OR OTHER ECONOMIC LOSSES), WHETHER IN AN ACTION IN CONTRACT OR TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY OR OTHERWISE, EVEN IF OEM HAS BEEN ADVISED OF THE POSSIBILITIES OF SUCH DAMAGES. FURTHER, OEM'S LIABILITY FOR ANY AND ALL WARRANTY CLAIMS HEREUNDER SHALL BE LIMITED TO THE PURCHASE PRICE OF THE PRODUCT.

General Exclusions and Conditions; What This Limited Warranty Does Not Cover:
The Product may incorporate subsystems, assemblies, parts, components, and other items manufactured by third-party manufacturers which may include, but are not limited to, chassis, engine and emissions system, transmission, transfer case, axles, suspensions, water pumps, monitors, valves, foam systems, aerial devices (each, a "Third-Party Part" and collectively, the "Third-Party Parts"). OEM does not warrant Third-Party Parts. Defects in materials and workmanship related to Third-Party Parts that carry their own warranty are subject to that warranty. OEM hereby assigns to Purchaser any assignable warranty applicable to the Third-Party Parts. The previous sentence is OEM's sole obligation with respect to Third-Party Parts.

This Limited Warranty does not apply to, and OEM shall have no responsibility or liability for, any claim, loss or damage resulting from or caused by any of the following: (a) normal wear and tear; (b) misuse, carelessness, abuse or neglect (e.g. overloading, driving over curbs or exposure to corrosive or flooded environments); (c) improper handling, storage or repairs; (d) use of the Product other than for its intended purpose; (e) collision, fire, theft, vandalism; (f) weather, freezing, flooding, acts of God, or other casualties; (g) exposure to salt, acids, corrosive agents or other damaging chemicals or materials; (h) components or systems, whether new or used, provided by Purchaser and installed at its request; (i) when the odometer or hour meter is disconnected, or its reading has been altered, or actual mileage or hours cannot be determined; (j) improper maintenance or use including, but not limited to, failure to follow the required or recommended maintenance schedules, failure to maintain operating parameters, and failure to follow operating instructions; (k) any Third-Party Parts; (l) additions or accessories not originally installed by OEM, including ancillary equipment used in firefighting, and any problems resulting from such additions or accessories; (m) any "aftermarket" devices installed on the Product; (n) the repair or modification of any existing part, component or subsystem originally installed by OEM without its prior express written authorization and any problems resulting from such repair or modification. Further, this Limited Warranty shall be null and void if the Product is ever leased or rented, whether or not for compensation, to another person or entity.

Miscellaneous Terms:
OEM reserves the right to make changes to the Product without incurring any obligation to modify or improve previously manufactured parts or products. Further, OEM may respond to or correct any issue or complaint for which it does not otherwise have responsibility under this Limited Warranty without becoming obligated to respond to or correct any future issue or complaint of a same or similar nature, and such response or correction shall not constitute an admission of warranty coverage or impose any additional obligations on OEM.

SPARTAN
REV GROUP
EMERGENCY RESPONSE

Fire Apparatus
Ten (10) Years or 100,000 Miles
Body Structure (Aluminum)
Limited Warranty

Subject to the provisions, limitations, and exclusions set forth in this certificate, Spartan Fire, LLC ("OEM") extends the following Limited Warranty to the Purchaser of a fire apparatus vehicle manufactured by OEM (the "Apparatus"). As used herein, "Purchaser" means that person or entity which purchases and commences first commercial use of the Product for its intended purpose.

This Limited Warranty Covers:
The Apparatus's aluminum body structure system (the "Product") shall be free from defects in material and workmanship, under normal use and maintenance, for the warranty period described below in this certificate. Also see the Section herein entitled "Specific Exclusions and Conditions" for more details regarding the parts and components covered by this Limited Warranty.
This Limited Warranty Coverage will Begin:
The date the Product is placed into service by the Purchaser or thirty (30) days after the date of the Product invoice to the Purchaser, whichever comes first.
This Limited Warranty Coverage Ends After the First Occurrence of:
Ten (10) Years or 100,000 Miles

Specific Exclusions and Conditions
This Limited Warranty only covers defects in the material and workmanship of the aluminum body structural components of the Product. Parts, components and subsystems excluded from this Limited Warranty include, but are not limited to, the exterior coating, graphics, corrosion damage, electrical system, lighting, equipment mounting, shelves, trays, compartment doors, hinges, trim parts, body mounting brackets, vibration isolators, fasteners or hardware.

Who is Covered by this Limited Warranty: This Limited Warranty only applies to Purchaser and, unless required by applicable law, may not be assigned or transferred to any other person or entity without OEM's prior written authorization. This Limited Warranty is valid only in the country in which the Product is first sold.

How to Obtain Warranty Service: See the Operator Manual(s) for instructions on how to register the Product, to obtain warranty repair authorization and service, and to make arrangements for the Product to be transported to an OEM-authorized service facility for warranty service. All warranty service and towing must be authorized by an OEM customer service representative before any warranty or towing service is performed. OEM shall not be responsible for, or reimburse Purchaser for, any costs or expenses relating to unauthorized warranty service or towing. Purchaser must notify OEM or its authorized customer service representative as soon as possible after discovery of any defect with the Product but in no event more than ten (10) days after discovery.

Exclusive Remedy: OEM will, at its option, repair or replace the Product if it is defective in materials or workmanship during the warranty period stated above and covered by this Limited Warranty. Such repair or replacement may be performed at an OEM facility or by an OEM-authorized service facility. Any repaired or replaced Product shall be warranted only for the remainder of the warranty period applicable to the original Product. THIS PARAGRAPH CONTAINS OEM'S SOLE OBLIGATION AND PURCHASER'S EXCLUSIVE REMEDIES FOR ANY DEFECTIVE PRODUCT COVERED BY THIS LIMITED WARRANTY.

Third Party Representations: No person or entity is authorized to create any other warranty, obligation or liability in connection with the Product, and OEM is not responsible for any representation, promise or warranty made by any person, dealer, component manufacturer, vehicle manufacturer, or other entity beyond what is expressly stated in this Limited Warranty.

Disclaimer of Other Warranties: THIS LIMITED WARRANTY IS OEM'S SOLE AND EXCLUSIVE WARRANTY WITH RESPECT TO THE PRODUCT. EXCEPT FOR THE LIMITED WARRANTIES STATED IN THIS CERTIFICATE, OEM MAKES NO OTHER EXPRESS OR IMPLIED REPRESENTATIONS OR WARRANTIES WHATSOEVER REGARDING THE PRODUCT INCLUDING, WITHOUT LIMITATION, ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR NON-INFRINGEMENT, OR ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE, ALL OF WHICH ARE EXPRESSLY DISCLAIMED. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. TO THE EXTENT THAT ANY IMPLIED WARRANTIES MAY NOT BE DISCLAIMED UNDER APPLICABLE LAW, SUCH WARRANTIES ARE EXPRESSLY LIMITED TO THE DURATION OF THE EXPRESS WARRANTY STATED IN THIS CERTIFICATE.

Limitation of Liability:
IN NO EVENT SHALL OEM BE LIABLE TO PURCHASER OR ANY THIRD PARTY FOR ANY INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, ENHANCED, PUNITIVE OR CONSEQUENTIAL DAMAGES RELATING TO OR ARISING OUT OF THE PRODUCT OR OTHERWISE (INCLUDING, WITHOUT LIMITATION, LOST REVENUE, LOST PROFITS, LOSS OF OPPORTUNITIES, LOSS OF USE, DOWN TIME, DIMINUTION IN VALUE, COST OF ALTERNATIVE TRANSPORTATION, INCONVENIENCE, COST OF LODGING, VEHICLE RENTAL EXPENSES, LABOR CHARGES, EQUIPMENT RENTAL CHARGES OR OTHER ECONOMIC LOSSES), WHETHER IN AN ACTION IN CONTRACT OR TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY OR OTHERWISE, EVEN IF OEM HAS BEEN ADVISED OF THE POSSIBILITIES OF SUCH DAMAGES. FURTHER, OEM'S LIABILITY FOR ANY AND ALL WARRANTY CLAIMS HEREUNDER SHALL BE LIMITED TO THE PURCHASE PRICE OF THE PRODUCT.

General Exclusions and Conditions; What This Limited Warranty Does Not Cover:
The Product may incorporate subsystems, assemblies, parts, components, and other items manufactured by third-party manufacturers which may include, but are not limited to, chassis, engine and emissions system, transmission, transfer case, axles, suspensions, water pumps, monitors, valves, foam systems, aerial devices (each, a "Third-Party Part" and collectively, the "Third-Party Parts"). OEM does not warrant Third-Party Parts. Defects in materials and workmanship related to Third-Party Parts that carry their own warranty are subject to that warranty. OEM hereby assigns to Purchaser any assignable warranty applicable to the Third-Party Parts. The previous sentence is OEM's sole obligation with respect to Third-Party Parts.

This Limited Warranty does not apply to, and OEM shall have no responsibility or liability for, any claim, loss or damage resulting from or caused by any of the following: (a) normal wear and tear; (b) misuse, carelessness, abuse or neglect (e.g. overloading, driving over curbs or exposure to corrosive or flooded environments); (c) improper handling, storage or repairs; (d) use of the Product other than for its intended purpose; (e) collision, fire, theft, vandalism; (f) weather, freezing, flooding, acts of God, or other casualties; (g) exposure to salt, acids, corrosive agents or other damaging chemicals or materials; (h) components or systems, whether new or used, provided by Purchaser and installed at its request; (i) when the odometer or hour meter is disconnected, or its reading has been altered, or actual mileage or hours cannot be determined; (j) improper maintenance or use including, but not limited to, failure to follow the required or recommended maintenance schedules, failure to maintain operating parameters, and failure to follow operating instructions; (k) any Third-Party Parts; (l) additions or accessories not originally installed by OEM, including ancillary equipment used in firefighting, and any problems resulting from such additions or accessories; (m) any "aftermarket" devices installed on the Product; (n) the repair or modification of any existing part, component or subsystem originally installed by OEM without its prior express written authorization and any problems resulting from such repair or modification. Further, this Limited Warranty shall be null and void if the Product is ever leased or rented, whether or not for compensation, to another person or entity.

Miscellaneous Terms:
OEM reserves the right to make changes to the Product without incurring any obligation to modify or improve previously manufactured parts or products. Further, OEM may respond to or correct any issue or complaint for which it does not otherwise have responsibility under this Limited Warranty without becoming obligated to respond to or correct any future issue or complaint of a same or similar nature, and such response or correction shall not constitute an admission of warranty coverage or impose any additional obligations on OEM.

SPARTAN
REV GROUP
EMERGENCY RESPONSE

Fire Apparatus

Twenty (20) Years or 100,000 Miles

Body Mounting (Vibra Torq® Mounting System)

Limited Warranty

Subject to the provisions, limitations, and exclusions set forth in this certificate, Spartan Fire, LLC ("OEM") extends the following Limited Warranty to the Purchaser of a fire apparatus vehicle manufactured by OEM (the "Apparatus"). As used herein, "Purchaser" means that person or entity which purchases and commences first commercial use of the Product for its intended purpose.

This Limited Warranty Covers:
The Apparatus's Vibra Torq® body mounting system (the "Product") shall be free from defects in material and workmanship, under normal use and maintenance, for the warranty period described below in this certificate. Also see the Section herein entitled "Specific Exclusions and Conditions" for more details regarding the parts and components covered by this Limited Warranty.
This Limited Warranty Coverage will Begin:
The date the Product is placed into service by the Purchaser or thirty (30) days after the date of the Product invoice to the Purchaser, whichever comes first.
This Limited Warranty Coverage Ends After the First Occurrence of:
Twenty (20) Years or 100,000 Miles

Specific Exclusions and Conditions
This Limited Warranty only covers defects in the material and workmanship of the Vibra Torq® isolators and isolator support components of the Vibra Torq® mounting Product. Parts, components and subsystems excluded from this Limited Warranty include, but are not limited to, the chassis, chassis frame, chassis components, body, body mounting, body substructure, pump compartment structure, damage resulting from corrosion, including but not limited to exposure to salt, deicing agents, acidic material, or other damaging chemicals, parts with evidence of alterations, cutting, splicing, welding or drilling.

Who is Covered by this Limited Warranty: This Limited Warranty only applies to Purchaser and, unless required by applicable law, may not be assigned or transferred to any other person or entity without OEM's prior written authorization. This Limited Warranty is valid only in the country in which the Product is first sold.

How to Obtain Warranty Service: See the Operator Manual(s) for instructions on how to register the Product, to obtain warranty repair authorization and service, and to make arrangements for the Product to be transported to an OEM-authorized service facility for warranty service. All warranty service and towing must be authorized by an OEM customer service representative before any warranty or towing service is performed. OEM shall not be responsible for, or reimburse Purchaser for, any costs or expenses relating to unauthorized warranty service or towing. Purchaser must notify OEM or its authorized customer service representative as soon as possible after discovery of any defect with the Product but in no event more than ten (10) days after discovery.

Exclusive Remedy: OEM will, at its option, repair or replace the Product if it is defective in materials or workmanship during the warranty period stated above and covered by this Limited Warranty. Such repair or replacement may be performed at an OEM facility or by an OEM-authorized service facility. Any repaired or replaced Product shall be warranted only for the remainder of the warranty period applicable to the original Product. THIS PARAGRAPH CONTAINS OEM'S SOLE OBLIGATION AND PURCHASER'S EXCLUSIVE REMEDIES FOR ANY DEFECTIVE PRODUCT COVERED BY THIS LIMITED WARRANTY.

Third Party Representations: No person or entity is authorized to create any other warranty, obligation or liability in connection with the Product, and OEM is not responsible for any representation, promise or warranty made by any person, dealer, component manufacturer, vehicle manufacturer, or other entity beyond what is expressly stated in this Limited Warranty.

Disclaimer of Other Warranties: THIS LIMITED WARRANTY IS OEM'S SOLE AND EXCLUSIVE WARRANTY WITH RESPECT TO THE PRODUCT. EXCEPT FOR THE LIMITED WARRANTIES STATED IN THIS CERTIFICATE, OEM MAKES NO OTHER EXPRESS OR IMPLIED REPRESENTATIONS OR WARRANTIES WHATSOEVER REGARDING THE PRODUCT INCLUDING, WITHOUT LIMITATION, ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR NON-INFRINGEMENT, OR ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE, ALL OF WHICH ARE EXPRESSLY DISCLAIMED. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. TO THE EXTENT THAT ANY IMPLIED WARRANTIES MAY NOT BE DISCLAIMED UNDER APPLICABLE LAW, SUCH WARRANTIES ARE EXPRESSLY LIMITED TO THE DURATION OF THE EXPRESS WARRANTY STATED IN THIS CERTIFICATE.

Limitation of Liability:
IN NO EVENT SHALL OEM BE LIABLE TO PURCHASER OR ANY THIRD PARTY FOR ANY INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, ENHANCED, PUNITIVE OR CONSEQUENTIAL DAMAGES RELATING TO OR ARISING OUT OF THE PRODUCT OR OTHERWISE (INCLUDING, WITHOUT LIMITATION, LOST REVENUE, LOST PROFITS, LOSS OF OPPORTUNITIES, LOSS OF USE, DOWN TIME, DIMINUTION IN VALUE, COST OF ALTERNATIVE TRANSPORTATION, INCONVENIENCE, COST OF LODGING, VEHICLE RENTAL EXPENSES, LABOR CHARGES, EQUIPMENT RENTAL CHARGES OR OTHER ECONOMIC LOSSES), WHETHER IN AN ACTION IN CONTRACT OR TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY OR OTHERWISE, EVEN IF OEM HAS BEEN ADVISED OF THE POSSIBILITIES OF SUCH DAMAGES. FURTHER, OEM'S LIABILITY FOR ANY AND ALL WARRANTY CLAIMS HEREUNDER SHALL BE LIMITED TO THE PURCHASE PRICE OF THE PRODUCT.

General Exclusions and Conditions; What This Limited Warranty Does Not Cover:
The Product may incorporate subsystems, assemblies, parts, components, and other items manufactured by third-party manufacturers which may include, but are not limited to, chassis, engine and emissions system, transmission, transfer case, axles, suspensions, water pumps, monitors, valves, foam systems, aerial devices (each, a "Third-Party Part" and collectively, the "Third-Party Parts"). OEM does not warrant Third-Party Parts. Defects in materials and workmanship related to Third-Party Parts that carry their own warranty are subject to that warranty. OEM hereby assigns to Purchaser any assignable warranty applicable to the Third-Party Parts. The previous sentence is OEM's sole obligation with respect to Third-Party Parts.

This Limited Warranty does not apply to, and OEM shall have no responsibility or liability for, any claim, loss or damage resulting from or caused by any of the following: (a) normal wear and tear; (b) misuse, carelessness, abuse or neglect (e.g. overloading, driving over curbs or exposure to corrosive or flooded environments); (c) improper handling, storage or repairs; (d) use of the Product other than for its intended purpose; (e) collision, fire, theft, vandalism; (f) weather, freezing, flooding, acts of God, or other casualties; (g) exposure to salt, acids, corrosive agents or other damaging chemicals or materials; (h) components or systems, whether new or used, provided by Purchaser and installed at its request; (i) when the odometer or hour meter is disconnected, or its reading has been altered, or actual mileage or hours cannot be determined; (j) improper maintenance or use including, but not limited to, failure to follow the required or recommended maintenance schedules, failure to maintain operating parameters, and failure to follow operating instructions; (k) any Third-Party Parts; (l) additions or accessories not originally installed by OEM, including ancillary equipment used in firefighting, and any problems resulting from such additions or accessories; (m) any "aftermarket" devices installed on the Product; (n) the repair or modification of any existing part, component or subsystem originally installed by OEM without its prior express written authorization and any problems resulting from such repair or modification. Further, this Limited Warranty shall be null and void if the Product is ever leased or rented, whether or not for compensation, to another person or entity.

Miscellaneous Terms:
OEM reserves the right to make changes to the Product without incurring any obligation to modify or improve previously manufactured parts or products. Further, OEM may respond to or correct any issue or complaint for which it does not otherwise have responsibility under this Limited Warranty without becoming obligated to respond to or correct any future issue or complaint of a same or similar nature, and such response or correction shall not constitute an admission of warranty coverage or impose any additional obligations on OEM.

SPARTAN
REV GROUP
EMERGENCY RESPONSE

Fire Apparatus
Ten (10) Years
Paint and Finish (Exterior Clear coated)
Limited Warranty

Subject to the provisions, limitations, and exclusions set forth in this certificate, Spartan Fire, LLC ("OEM") extends the following Limited Warranty to the Purchaser of a fire apparatus vehicle manufactured by OEM (the Apparatus"). As used herein, "Purchaser" means that person or entity which purchases and commences first commercial use of the Product for its intended purpose.

This Limited Warranty Covers:

The Apparatus's OEM-applied exterior coating and finishing system (the "Product") shall be free from the paint system adhesion defects listed in the Section herein entitled "Specific Exclusions and Conditions", under normal use and maintenance, for the warranty period described in this certificate.

Limited Warranty coverage schedule:

Basecoat/Clear Coat		Corrosion	
0-120 Months:	100%	0-24 Months or 100,000 Miles:	100%
		25-48 Months or 100,000 Miles:	50%

If the Product is manufactured using a chassis provided by a Third-Party Parts manufacturer (i.e. a commercial chassis), this Limited Warranty shall not apply to the chassis. Instead, the Product's chassis will be covered by, and subject to, a separate limited warranty provided by that Third-Party Parts manufacturer. In addition, also see the Section herein entitled "Specific Exclusions and Conditions" for more details regarding this Limited Warranty.

This Limited Warranty Coverage will Begin:

The date the Product is placed into service by the Purchaser or thirty (30) days after the date of the Product invoice to the Purchaser, whichever comes first.

This Limited Warranty Coverage Ends After the First Occurrence of:

Ten (10) Years

Who is Covered by this Limited Warranty: This Limited Warranty only applies to Purchaser and, unless required by applicable law, may not be assigned or transferred to any other person or entity without OEM's prior written authorization. This Limited Warranty is valid only in the country in which the Product is first sold.

How to Obtain Warranty Service: See the Operator Manual(s) for instructions on how to register the Product, to obtain warranty repair authorization and service, and to make arrangements for the Product to be transported to an OEM-authorized service facility for warranty service. All warranty service and towing must be authorized by an OEM customer service representative before any warranty or towing service is performed. OEM shall not be responsible for, or reimburse Purchaser for, any costs or expenses relating to unauthorized warranty service or towing. Purchaser must notify OEM or its authorized customer service representative as soon as possible after discovery of any defect with the Product but in no event more than ten (10) days after discovery.

Exclusive Remedy: OEM will, at its option, repair or replace the Product if it is defective in materials or workmanship during the warranty period stated above and covered by this Limited Warranty. Such repair or replacement may be performed at an OEM facility or by an OEM-authorized service facility. Any repaired or replaced Product shall be warranted only for the remainder of the warranty period applicable to the original Product. THIS PARAGRAPH CONTAINS OEM'S SOLE OBLIGATION AND PURCHASER'S EXCLUSIVE REMEDIES FOR ANY DEFECTIVE PRODUCT COVERED BY THIS LIMITED WARRANTY.

Third Party Representations: No person or entity is authorized to create any other warranty, obligation or liability in connection with the Product, and OEM is not responsible for any representation, promise or warranty made by any person, dealer, component manufacturer, vehicle manufacturer, or other entity beyond what is expressly stated in this Limited Warranty.

Disclaimer of Other Warranties: THIS LIMITED WARRANTY IS OEM'S SOLE AND EXCLUSIVE WARRANTY WITH RESPECT TO THE PRODUCT. EXCEPT FOR THE LIMITED WARRANTIES STATED IN THIS CERTIFICATE, OEM MAKES NO OTHER EXPRESS OR IMPLIED REPRESENTATIONS OR WARRANTIES WHATSOEVER REGARDING THE PRODUCT INCLUDING, WITHOUT LIMITATION, ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR NON-INFRINGEMENT, OR ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE, ALL OF WHICH ARE EXPRESSLY DISCLAIMED. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. TO THE EXTENT THAT ANY IMPLIED WARRANTIES MAY NOT BE DISCLAIMED UNDER APPLICABLE LAW, SUCH WARRANTIES ARE EXPRESSLY LIMITED TO THE DURATION OF THE EXPRESS WARRANTY STATED IN THIS CERTIFICATE.

Limitation of Liability:
IN NO EVENT SHALL OEM BE LIABLE TO PURCHASER OR ANY THIRD PARTY FOR ANY INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, ENHANCED, PUNITIVE OR CONSEQUENTIAL DAMAGES RELATING TO OR ARISING OUT OF THE PRODUCT OR OTHERWISE (INCLUDING, WITHOUT LIMITATION, LOST REVENUE, LOST PROFITS, LOSS OF OPPORTUNITIES, LOSS OF USE, DOWN TIME, DIMINUTION IN VALUE, COST OF ALTERNATIVE TRANSPORTATION, INCONVENIENCE, COST OF LODGING, VEHICLE RENTAL EXPENSES, LABOR CHARGES, EQUIPMENT RENTAL CHARGES OR OTHER ECONOMIC LOSSES), WHETHER IN AN ACTION IN CONTRACT OR TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY OR OTHERWISE, EVEN IF OEM HAS BEEN ADVISED OF THE POSSIBILITIES OF SUCH DAMAGES. FURTHER, OEM'S LIABILITY FOR ANY AND ALL WARRANTY CLAIMS HEREUNDER SHALL BE LIMITED TO THE PURCHASE PRICE OF THE PRODUCT.

Specific Exclusions and Conditions

This Limited Warranty only covers defects in the following aspects of the Product:
A. Loss of adhesion of the Product resulting in rusting less than Rust Grade 5 as in ASTM D 610-08.
B. Cracking of the Paint System as set forth in ASTM D 661-93.
C. Excessive loss of gloss caused by cracking, checking, and hazing.
D. Scab corrosion, and corrosion under the paint film, where the point of origin is not: (a) A breach of the coating that occurred because of damage to the paint system, (b) Corrosion originating from a crevice, or (c) Dissimilar metals
E. Chemical Resistance meet ASTM D1308 standards 25 MEK double rubs.
F. Stone Chip SAE J400 Method A – 4B or above.
Damage or Defects excluded from this Limited Warranty include, but are not limited to:
1. Use of cleaning products not prescribed in the apparatus operator manual(s).
2. Exposure to corrosive agents, acid rain, chemical fallout.
3. Heavy-duty pressure washing or aggressive mechanical wash systems.
4. Paint deterioration caused by abuse, accidents, scratches, chips, or bruises.
5. Paint or coatings on the vehicle's undercarriage, interior, or aerial structure.
6. Applied or painted graphics, reflective material or gold leaf.
7. Paints or coatings of supplier parts including roller shutter doors.
8. Mechanical abrasion or external foreign object damage.
9. Application of, or removal of, stickers or decals including replacement.
10. Body compartment interior coatings, undercarriage and frame.
11. Defects resulting from or inherent to application such as runs, orange peel, and fisheyes.
12. Defects caused by acid rain and industrial fallout.

General Exclusions and Conditions; What This Limited Warranty Does Not Cover:
The Product may incorporate subsystems, assemblies, parts, components, and other items manufactured by third-party manufacturers which may include, but are not limited to, chassis, engine and emissions system, transmission, transfer case, axles, suspensions, water pumps, monitors, valves, foam systems, aerial devices (each, a "Third-Party Part" and collectively, the "Third-Party Parts"). OEM does not warrant Third-Party Parts. Defects in materials and workmanship related to Third-Party Parts that carry their own warranty are subject to that warranty. OEM hereby assigns to Purchaser any assignable warranty applicable to the Third-Party Parts. The previous sentence is OEM's sole obligation with respect to Third-Party Parts.

This Limited Warranty does not apply to, and OEM shall have no responsibility or liability for, any claim, loss or damage resulting from or caused by any of the following: (a) normal wear and tear; (b) misuse, carelessness, abuse or neglect (e.g. overloading, driving over curbs or exposure to corrosive or flooded environments); (c) improper handling, storage or repairs; (d) use of the Product other than for its intended purpose; (e) collision, fire, theft, vandalism; (f) weather, freezing, flooding, acts of God, or other casualties; (g) exposure to salt, acids, corrosive agents or other damaging chemicals or materials; (h) components or systems, whether new or used, provided by Purchaser and installed at its request; (i) when the odometer or hour meter is disconnected, or its reading has been altered, or actual mileage or hours cannot be determined; (j) improper maintenance or use including, but not limited to, failure to follow the required or recommended maintenance schedules, failure to maintain operating parameters, and failure to follow operating instructions; (k) any Third-Party Parts; (l) additions or accessories not originally installed by OEM, including ancillary equipment used in firefighting, and any problems resulting from such additions or accessories; (m) any "aftermarket" devices installed on the Product; (n) the repair or modification of any existing part, component or subsystem originally installed by OEM without its prior express written authorization and any problems resulting from such repair or modification. Further, this Limited Warranty shall be null and void if the Product is ever leased or rented, whether or not for compensation, to another person or entity.

Miscellaneous Terms:
OEM reserves the right to make changes to the Product without incurring any obligation to modify or improve previously manufactured parts or products. Further, OEM may respond to or correct any issue or complaint for which it does not otherwise have responsibility under this Limited Warranty without becoming obligated to respond to or correct any future issue or complaint of a same or similar nature, and such response or correction shall not constitute an admission of warranty coverage or impose any additional obligations on OEM.

SPARTAN
REV GROUP
EMERGENCY RESPONSE

Fire Apparatus

Ten (10) Years or 100,000 Miles

Plumbing and Piping Corrosion-Free (Stainless Steel)

Limited Warranty

Subject to the provisions, limitations, and exclusions set forth in this certificate, Spartan Fire, LLC ("OEM") extends the following Limited Warranty to the Purchaser of a fire apparatus vehicle manufactured by OEM (the Apparatus"). As used herein, "Purchaser" means that person or entity which purchases and commences first commercial use of the Product for its intended purpose.

This Limited Warranty Covers:
The Apparatus's stainless steel fire suppression plumbing and piping shall system (the "Product") shall be free from corrosion perforation, under normal use and maintenance, for the warranty period described below in this certificate. Also see the Section herein entitled "Specific Exclusions and Conditions" for a more detailed description of the parts and components covered by this Limited Warranty.
This Limited Warranty Coverage will Begin:
The date the Product is placed into service by the Purchaser or thirty (30) days after the date of the Product invoice to the Purchaser, whichever comes first.
This Limited Warranty Coverage Ends After the First Occurrence of:
Ten (10) Years or 100,000 Miles

Specific Exclusions and Conditions
This Limited Warranty only covers corrosion perforation in the stainless steel fire suppression pipes and associated joints for intake and discharge lines of the Product. Parts, components and subsystems excluded from this Limited Warranty include, but are not limited to, the exterior coatings, electrical system, pump and pump accessories, valves, monitors, light towers, generators, gauges, hoses, trim parts, fasteners or hardware. As used in this Limited Warranty, corrosion perforation is defined as an actual hole through the piping material caused by corrosion.

Who is Covered by this Limited Warranty: This Limited Warranty only applies to Purchaser and, unless required by applicable law, may not be assigned or transferred to any other person or entity without OEM's prior written authorization. This Limited Warranty is valid only in the country in which the Product is first sold.

How to Obtain Warranty Service: See the Operator Manual(s) for instructions on how to register the Product, to obtain warranty repair authorization and service, and to make arrangements for the Product to be transported to an OEM-authorized service facility for warranty service. All warranty service and towing must be authorized by an OEM customer service representative before any warranty or towing service is performed. OEM shall not be responsible for, or reimburse Purchaser for, any costs or expenses relating to unauthorized warranty service or towing. Purchaser must notify OEM or its authorized customer service representative as soon as possible after discovery of any defect with the Product but in no event more than ten (10) days after discovery.

Exclusive Remedy: OEM will, at its option, repair or replace the Product if it is defective in materials or workmanship during the warranty period stated above and covered by this Limited Warranty. Such repair or replacement may be performed at an OEM facility or by an OEM-authorized service facility. Any repaired or replaced Product shall be warranted only for the remainder of the warranty period applicable to the original Product. THIS PARAGRAPH CONTAINS OEM'S SOLE OBLIGATION AND PURCHASER'S EXCLUSIVE REMEDIES FOR ANY DEFECTIVE PRODUCT COVERED BY THIS LIMITED WARRANTY.

Third Party Representations: No person or entity is authorized to create any other warranty, obligation or liability in connection with the Product, and OEM is not responsible for any representation, promise or warranty made by any person, dealer, component manufacturer, vehicle manufacturer, or other entity beyond what is expressly stated in this Limited Warranty.

Disclaimer of Other Warranties: THIS LIMITED WARRANTY IS OEM'S SOLE AND EXCLUSIVE WARRANTY WITH RESPECT TO THE PRODUCT. EXCEPT FOR THE LIMITED WARRANTIES STATED IN THIS CERTIFICATE, OEM MAKES NO OTHER EXPRESS OR IMPLIED REPRESENTATIONS OR WARRANTIES WHATSOEVER REGARDING THE PRODUCT INCLUDING, WITHOUT LIMITATION, ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR NON-INFRINGEMENT, OR ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE, ALL OF WHICH ARE EXPRESSLY DISCLAIMED. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. TO THE EXTENT THAT ANY IMPLIED WARRANTIES MAY NOT BE DISCLAIMED UNDER APPLICABLE LAW, SUCH WARRANTIES ARE EXPRESSLY LIMITED TO THE DURATION OF THE EXPRESS WARRANTY STATED IN THIS CERTIFICATE.

Limitation of Liability:
IN NO EVENT SHALL OEM BE LIABLE TO PURCHASER OR ANY THIRD PARTY FOR ANY INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, ENHANCED, PUNITIVE OR CONSEQUENTIAL DAMAGES RELATING TO OR ARISING OUT OF THE PRODUCT OR OTHERWISE (INCLUDING, WITHOUT LIMITATION, LOST REVENUE, LOST PROFITS, LOSS OF OPPORTUNITIES, LOSS OF USE, DOWN TIME, DIMINUTION IN VALUE, COST OF ALTERNATIVE TRANSPORTATION, INCONVENIENCE, COST OF LODGING, VEHICLE RENTAL EXPENSES, LABOR CHARGES, EQUIPMENT RENTAL CHARGES OR OTHER ECONOMIC LOSSES), WHETHER IN AN ACTION IN CONTRACT OR TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY OR OTHERWISE, EVEN IF OEM HAS BEEN ADVISED OF THE POSSIBILITIES OF SUCH DAMAGES. FURTHER, OEM'S LIABILITY FOR ANY AND ALL WARRANTY CLAIMS HEREUNDER SHALL BE LIMITED TO THE PURCHASE PRICE OF THE PRODUCT.

General Exclusions and Conditions; What This Limited Warranty Does Not Cover:
The Product may incorporate subsystems, assemblies, parts, components, and other items manufactured by third-party manufacturers which may include, but are not limited to, chassis, engine and emissions system, transmission, transfer case, axles, suspensions, water pumps, monitors, valves, foam systems, aerial devices (each, a "Third-Party Part" and collectively, the "Third-Party Parts"). OEM does not warrant Third-Party Parts. Defects in materials and workmanship related to Third-Party Parts that carry their own warranty are subject to that warranty. OEM hereby assigns to Purchaser any assignable warranty applicable to the Third-Party Parts. The previous sentence is OEM's sole obligation with respect to Third-Party Parts.

This Limited Warranty does not apply to, and OEM shall have no responsibility or liability for, any claim, loss or damage resulting from or caused by any of the following: (a) normal wear and tear; (b) misuse, carelessness, abuse or neglect (e.g. overloading, driving over curbs or exposure to corrosive or flooded environments); (c) improper handling, storage or repairs; (d) use of the Product other than for its intended purpose; (e) collision, fire, theft, vandalism; (f) weather, freezing, flooding, acts of God, or other casualties; (g) exposure to salt, acids, corrosive agents or other damaging chemicals or materials; (h) components or systems, whether new or used, provided by Purchaser and installed at its request; (i) when the odometer or hour meter is disconnected, or its reading has been altered, or actual mileage or hours cannot be determined; (j) improper maintenance or use including, but not limited to, failure to follow the required or recommended maintenance schedules, failure to maintain operating parameters, and failure to follow operating instructions; (k) any Third-Party Parts; (l) additions or accessories not originally installed by OEM, including ancillary equipment used in firefighting, and any problems resulting from such additions or accessories; (m) any "aftermarket" devices installed on the Product; (n) the repair or modification of any existing part, component or subsystem originally installed by OEM without its prior express written authorization and any problems resulting from such repair or modification. Further, this Limited Warranty shall be null and void if the Product is ever leased or rented, whether or not for compensation, to another person or entity.

Miscellaneous Terms:
OEM reserves the right to make changes to the Product without incurring any obligation to modify or improve previously manufactured parts or products. Further, OEM may respond to or correct any issue or complaint for which it does not otherwise have responsibility under this Limited Warranty without becoming obligated to respond to or correct any future issue or complaint of a same or similar nature, and such response or correction shall not constitute an admission of warranty coverage or impose any additional obligations on OEM.